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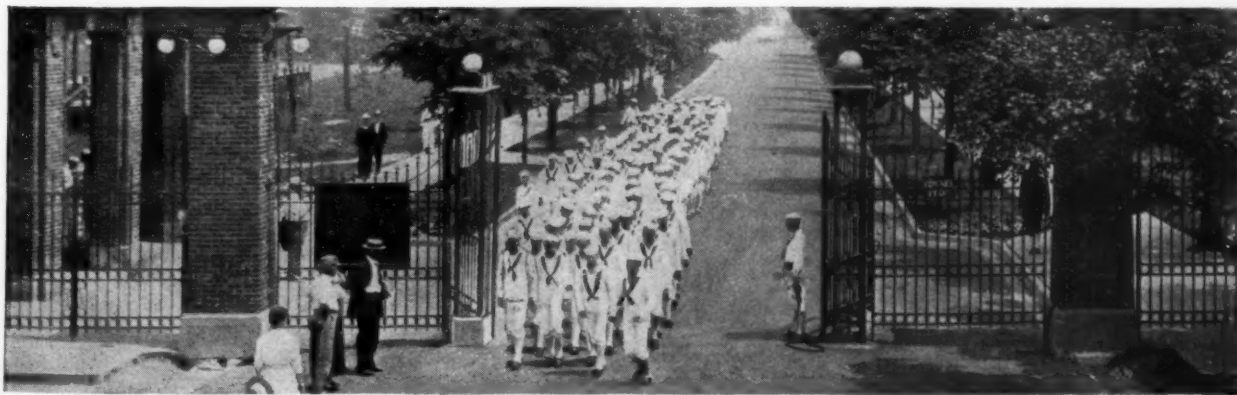
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QUALITY FIRST.

Municipal Journal

Volume XLIII.

NEW YORK, DECEMBER 6, 1917

No. 23

GREAT FALLS WATER PURIFICATION AND SOFTENING PLANT

Treatment of Missouri River Water with Sulphate of Iron—Omission of Lime Facilitated by Thorough Mixing—Softening—Filtering—Chlorine Treatment—Appearance of Plant Considered Important.

Great Falls, Montana, with a population of about 30,000, has for years used the Missouri river water in its raw state for both domestic and fire uses. An agitation for a pure water supply has extended over a period of about ten years, the agitation being due to the fact that the water was very turbid at certain seasons of the year and the typhoid cases in the city were also above normal; also about two years ago the State Board of Health of Montana took an active interest in the health conditions of the city, believing that much of the typhoid of the city was undoubtedly due to using the Missouri river water without adequate purification.

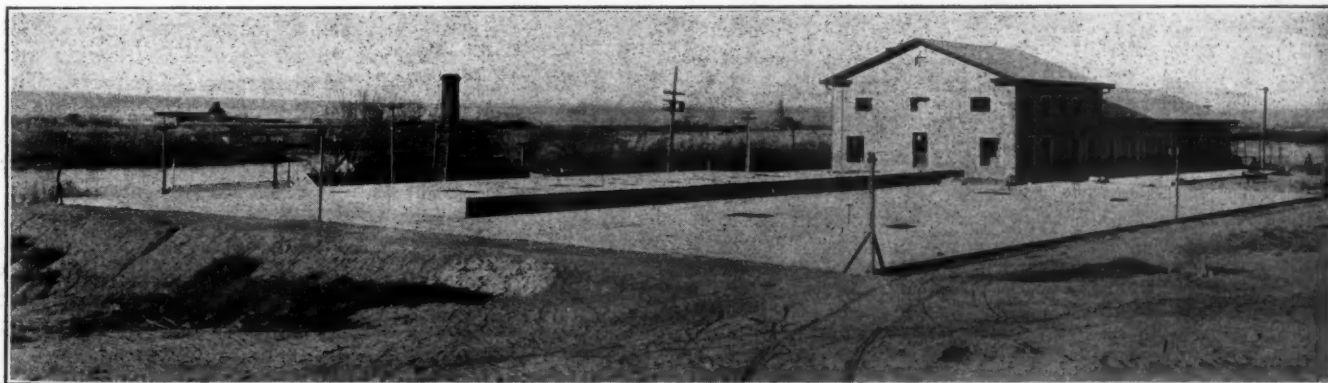
One bond issue for the installation of a filtration plant had previously been defeated at the polls, but the defeat was attributable largely to the fact that information concerning the beneficial results of filtration and the cost of purifying water was not clearly and fully presented to the citizens. To avoid the mistakes made formerly, the citizens undertook to inform themselves thoroughly as to the value of pure water, cost of filtration, beneficial results of filtered water and a campaign of education was conducted largely through the influence of the Commercial Club, Rotary Club, Women's Clubs and other civic

take charge of the execution of the work, and this citizens' committee (which was composed of the leading citizens and several local engineers) passed upon the plans, specifications, receiving of bids, final tests and other details of the entire work.

The improvements consist of an electrically operated low-service pumping station which takes water direct from the Missouri river and discharges it into a mixing chamber where the chemicals are thoroughly mixed with the water previous to its passing into the settling basins. After passing through the settling basins the water then flows into eight 1½-million-gallon filter units; thence into the clear water reservoir.

The electrical pumping station equipment consists of four motor-driven centrifugal pumps, two 2-million-gallon pumps and two 4-million-gallon pumps, or a total of 12 million gallons pumping capacity.

The purification plant consists of, first, a reinforced concrete mixing chamber; and, owing to the softening requirements, the mixing chamber was designed with a view to a thorough mixing and a long travel of the water before passing into the settling basins. To insure the water passing through the mixing chamber and to



SETTLING BASINS, RAISED MIXING CHAMBER, CHEMICAL HOUSE AND FILTER HOUSE.

organizations. At one stage of the discussion it was found that the women voters of the city would be against the bond issue for filtration unless it also included water softening; so, to insure the success of the bond issue, the plans were therefore made to provide for a combined water softening and purifying plant. Although the water is not an unreasonably hard water, the desirability for a softer water was felt by the women voters.

After bonds had been voted for the project, the engineers employed by the city, Burns & McDonnell, were instructed to prepare their plans and specifications to cover both water softening and purification. A citizens' committee was appointed outside of the City Council to

overcome the loss in friction through baffle walls, the mixing chamber stands at a level about three feet higher than the settling basins. The travel through the mixing chamber is 1,660 feet, requiring a time in the mixing chamber of thirty-six minutes when pumping at the rate of twelve million gallons per day. When pumping at a greater or less rate the length of travel and velocity through the mixing chamber can be maintained at various rates by changing the baffle walls or cutting out a portion of the mixing chamber. The velocity through the mixing chamber of .77 foot per second prevents any sediment depositing in the mixing chamber.

The thorough mixing that is given in the mixing cham-

ber accomplishes considerable clarification before the water even reaches the end of the mixing chamber, and it therefore passes into the settling basin with this clarification process well started. The water has a retention period in the settling basins of about eight hours when filtering at the rate of twelve million gallons per day; the water, therefore, reaches the filters in a well-prepared condition for filtration. An examination of the residue in the bottom of the settling basins does not show any undissolved or unused chemicals, and experiments were conducted for about thirty days to determine the minimum amount of chemicals that could be used to obtain the most efficient results. It was found that from .6 to .7 grains of sulphate of iron was the amount of chemicals required for thorough sedimentation during ordinary stages of the water. This quantity will undoubtedly have to be increased during the highest turbidity stages of the water. Although the natural lime in the water is small, yet with the thorough mixing accomplished in the mixing chamber it was found that it was not necessary to add lime to the water, and the omission of lime is a large saving in the annual cost of operation. This saving in lime is undoubtedly accomplished by the thorough mixing the water receives in the mixing chamber.

Chemicals for both purifying and softening are fed by dry-feed machines, which are connected with a Venturi meter and so arranged that the chemicals are fed in direct proportion to the water used. It is believed that this saves greatly in the amount of chemicals used, as well as in getting a uniform strength of solution.

At Great Falls, as in many other cities, the volume of water pumped during the twenty-four-hour period varies greatly at different portions of the day. The rate of water consumption will vary from two to twelve million gallons per day, and the dry feed machines automatically control the chemicals, thus having the proper amount of chemicals for the water used.

The chemicals for the plant are purchased in car-load lots and hoisted by electric elevator to the fourth floor of the chemical house, where the chemicals are placed on top of concrete hoppers which lead to the hopper of the dry feed machine on the floor below.

The filters are arranged in eight units, four on each side of the main filter floor, partially exposed so that the water can be observed. The filter units are of 1½-million gallons capacity each, and cleaning is accomplished through the use of air and water and all valves used for cleaning and controlling are electrically operated. The operating tables are of marble construction. The loss-of-head gauges, sampling devices, clock and all equipment are of nickel-plated finish. The loss-of-head gauges are of the recording type which both indicate and record the loss of head consumed in the operation of the filter and indicate the time that the filter requires washing. Each loss-of-head gauge is equipped with three indicating pointers, the first indicating the water level in the filter, the second indicating the wash-water pressure, and the third indicating the loss of head in the filter. The recording chart is rectilinear in form, graduated horizontally in hours and vertically in feet, and so arranged that each will give a record for a twenty-four-hour run of the filter. The rate of filtration in each filter is controlled by an outlet controller in the effluent pipe. By means of a graduated hand-wheel located on the operating floor, the rate controllers may be set to give any desired rate of filtration between the limits of zero and two million gallons per day for each filter.

The pipe gallery beneath the main filter floor is well lighted and has sufficient space and head-room to make it easily accessible for observation or repairs.

The motor-driven air blower has a capacity of 2,600

cubic feet of free air per minute at four pounds pressure and is operated by a 50-horsepower squirrel cage electric motor. The blower is of the Root type and has a capacity and pressure sufficient to give a uniform agitation of sand by the air.

A part of the equipment is a 24-inch Venturi meter recording the rate of flow in gallons per day, with a chart recorder giving an unbroken autographic record of the rate of flow from hour to hour, and a counter-dial showing the total gallons of water that have passed through the meter. These features, while not absolutely essential in any water works plant, are considered desirable for an efficient and intelligent operation of any modern water works plant.

The guaranteed bacterial efficiency of 97 per cent was exceeded considerably in the tests, which were conducted for about thirty days; the filtered water being clear and sparkling and free from suspended matter, odors, turbidity and discoloration. In a series of tests the bacterial efficiency for each filter was found to be as follows:

Raw water from river....	1,480	bacterial per cubic centimeter
Water in settling basins..	910	" " " "
Water from Filter No. 1..	8	" " " "
" " " " 2..	14	" " " "
" " " " 3..	6	" " " "
" " " " 4..	6	" " " "
" " " " 5..	4	" " " "
" " " " 6..	8	" " " "
" " " " 7..	2	" " " "
" " " " 8..	8	" " " "
Average of the 8 filters..	7	" " " "

Efficiency of filters, or average bacteria removal from water	99.52%
Efficiency of settling basins, or bacterial removal by settling basins alone.....	38.5 %

The plant is provided with liquid chlorine equipment as an adjunct to the filter plant, but no liquid chlorine was used in the test. The high number of bacteria in the effluent from filter No. 2, 14 per c.c., was due to the fact that this sample was collected immediately after washing the filter.

One noticeable result since the plant has been placed in operation is the decline in the sale of bottled water, for analyses have shown that the municipal supply is far superior to most of the bottled, including spring and distilled waters on the market.

The settling basins are 18 ft. deep, 160 ft. wide and 180 ft. long, having reinforced concrete slab covers. The floors consist of two layers of concrete with water-proofing between the joints. Two reinforced concrete 6-in. baffle walls extend the full length of the basins. The basins are divided into two chambers, so that when one is undergoing cleaning or repairs the other may be used. The mixing chamber also is divided into two chambers, so that one-half may be used while the other half is being cleaned or repaired. The outside of the settling basin is of the buttress type reinforced, but with the excavated earth filled to the top of the basins.

Beneath the filter house is the clear water reservoir, also of reinforced concrete construction, with a depth of 9 ft. The water flows from this clear water reservoir by gravity to the suction of the high-duty pumps. The location of the plant on a side hill gives twelve feet head to the suction of the high duty pumps. All the piping from the pump station to the purification plant passes through a 6 ft. by 8 ft. reinforced concrete tunnel under the Great Northern Railroad tracks.

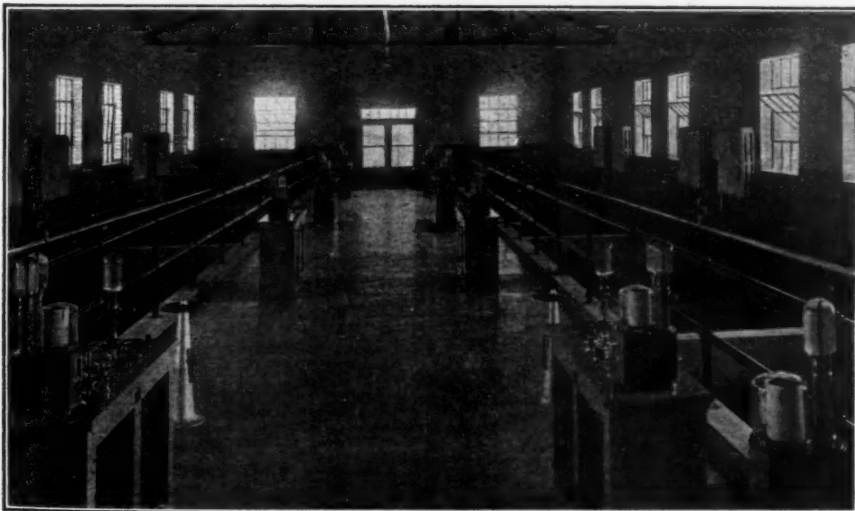
The filter house, chemical house and head house are constructed of buff-colored pressed brick, with steel roof trusses, large windows of the "Fenestra" sash type. Considerable ornamentation was given to the exterior and interior of the filter house building, with the idea that the plant will be visited and inspected not only by the

citizens of Great Falls, but by many representatives of other municipalities. It is taken for granted that the average layman is not thoroughly familiar with the process used in water purifying and softening and it is believed that better results in cities can be accomplished by making the water users familiar with the care with which their water is treated and handled. Therefore inspections of the plant are invited. During the first month's operation of the plant at Great Falls representatives from about fifty municipalities inspected the plant and its operation, and it is believed that such inspections greatly aid in the general education of the public to realize the value of pure water and how it can be obtained. The entire grounds surrounding the filtration plant, consisting of about ten acres, is being beautified by the Park Board by building of roads, paths, lawns and shrubbery as well as ornamental lighting, in the belief that efforts to supply good, clear pure water should be supplemented by making the building and grounds equally clean and attractive.

A complete softening of the water is not attempted, as the water is not an unusually hard water, but a partial softening is accomplished at reasonable expense, the soda ash for softening being fed by a dry-feed machine into the mixing chamber along with the sulphate of iron and lime. It is believed that the installation at Great Falls embodies all of the modern features of water softening and purifying plants to make it not only efficient in results, but also economical in operation.

Great Falls, like many Western and Northwestern cities, has used water at flat rates, but with the installation of the purification plant it is realized that it is poor business policy to filter water for irrigating use for parks, lawns and war gardens; therefore, the officials are taking the preliminary steps toward placing all water users on a meter basis. The water consumption at Great Falls at the present time is reported to be the highest of any city in the United States, being approximately 400 gallons per capita per day. The use of meters was not considered while raw and highly turbid water was being used, but now with a clear, sparkling water no objection can be urged against the use of meters.

With the installation of meters it is believed that the present water purifying and softening plant is sufficient to take care of a population of approximately 100,000.



VIEW OF FILTER OPERATING FLOOR, GREAT FALLS.

A new 48-in. intake to the suction of the pumps is now being installed and other improvements for reinforcing the distribution system are in progress. The entire distribution system in the city is of cast iron and consists

of about forty-five miles of pipe. The water is delivered into the mains under direct pressure by five motor-driven high-service centrifugal pumps.

The above work was let by competitive bidding and was sub-divided into three sections. The total cost,



ENTRANCE TO FILTER HOUSE.

including engineering, real estate and incidentals, was approximately \$225,000. Olson & Johnson, of Missoula, Montana, were the contractors who installed the settling basins, filter house and the general construction work. The low service pump installation, including all piping, was installed by the Merkle Machinery Company and consisted of Platt Iron Works pumps and General Electric Company motors. The water softening and purifying plant was installed by the Pittsburgh Filter Mfg. Company of Pittsburgh, Pa.

M. L. Morris, who supervised the installation of the work, has been appointed by the city as superintendent of filtration and has full charge of the operation of the plant. The plans, specifications, supervision of construction and final tests were conducted by Burns & McDonnell, consulting engineers.

ALLEYS IN MINNEAPOLIS.

Many members of the Minneapolis Real Estate Board have been advocating narrower streets and sidewalks and the elimination of alleys in the residence districts of that city, but this is opposed by C. E. Dutton, assistant city engineer in charge of the Paving Department. He is quoted as expressing the opinion that no street should have a roadway less than 32 feet wide.

As to alleys, he states that the council is now being asked almost daily to open alleys where they do not now exist. Seventeen new alleys were opened by the city this year at considerable cost because of the request of property owners that they be put in. "The only possible plan of building where alleys can be eliminated conveniently is where houses are surrounded by ample grounds and private driveways provided. I do not believe then that they are as satisfactory from a service standpoint as an alley." The alleys, he believes, should be wide enough to permit the placing in them of conduits for all water, gas and electric service mains and to carry on their pavement much of the heavy traffic such as ice, coal, garbage and other wagons and heavy trucks of all kinds, thus preventing considerable of the congestion in the streets.

We do not agree with Mr. Dutton in most of the above, as readers of Municipal Journal are already aware. Making a 32-ft. roadway a minimum for residence districts is, in our opinion, a waste of material and labor

and of the city's money, 20 to 24-ft. roadway pavement having proved to be abundantly wide for minor streets. As to alleys, they are great conveniences and probably are to be recommended if they are so surfaced that they can be kept clean, and if they are kept clean. To use them as heavy traffic streets, however, is wasteful of money invested in paving, since the character of pavement required would cost even more per square yard than that on the main streets; and their use for general through traffic would greatly diminish their convenience as service streets for the delivery of parcels and collection of garbage, ashes, etc., each of which involves the continual stopping of vehicles and moving slowly from point to point without interference from through traffic. Our opinion of an ideal alley is one about 20 feet wide, sloping to a gutter in the middle, and paved from property line to property line with a smooth, impervious surface capable of carrying refuse collection carts and delivery wagons.

WALLINGFORD MUNICIPAL ELECTRIC WORKS

Physical and Financial Condition of Plant After Sixteen Years of Service—Rates Reduced—Cooking with Electricity.

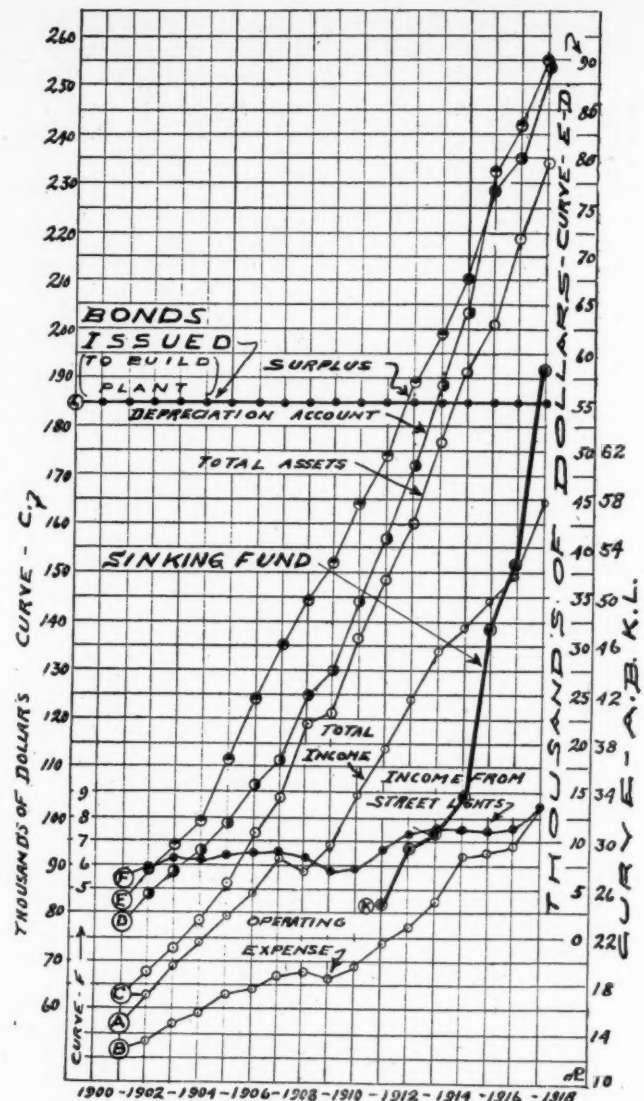
The borough of Wallingford, Conn., has for more than sixteen years operated an electric plant. The following information concerning it is taken from the report of the manager and superintendent, A. L. Pierce, for the year ending July 31, 1917:

Current is furnished by both steam and hydraulic plants, the capacity of the generators at the steam plant being 450 kw. and of that at the hydraulic plant 120 kw. At the steam plant the steam turbine generated 270 watts per pound of coal and the steam engines 149 watts, or 7.1 lbs. of coal per kw. by the engines and 3.8 lbs. by the turbine. The average cost of manufacturing at the steam station was 2.02c. per kw. and at the hydraulic plant 0.698c.; these costs not including depreciation on the investment. The average cost of fuel per kw. at the steam station was 1c. These figures include all coal used for new fires, banking, etc.

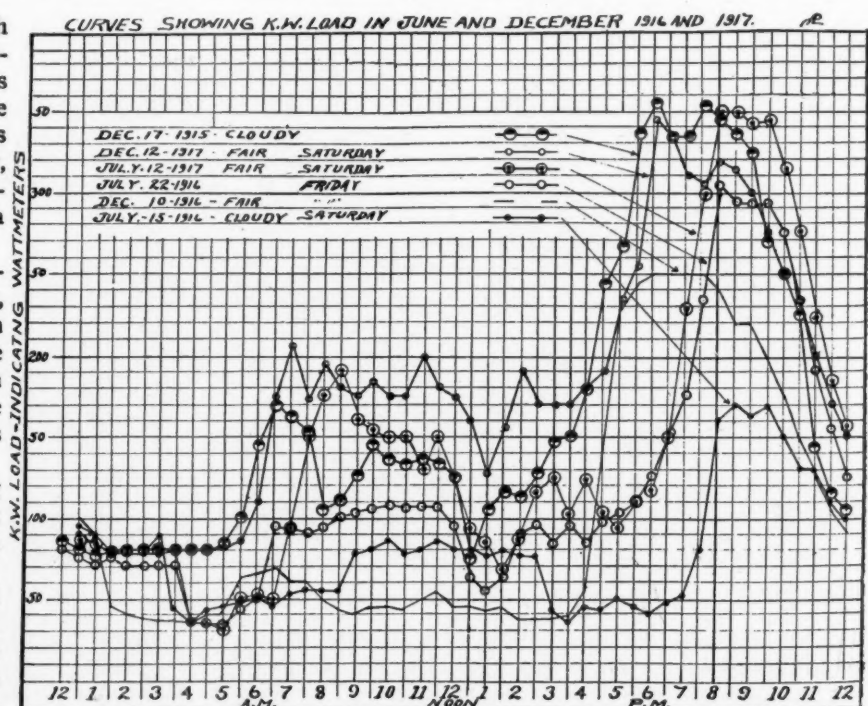
The current is distributed through the city over three street lighting circuits, six commercial lighting circuits and one 2-phase power circuit. The price received for 100-watt lamps was \$18; for 250-watt, \$36; for 400-watt, \$80; for 600-watt, \$100, and for 400-watt, in clusters, \$80; all series Mazda lamps.

Considerable use is made of electricity in Wallingford households, there having been 820 flatirons in service and 25 electric ranges, while the heating apparatus used had an estimated capacity of 590 kw. The population in the area served was 10,500.

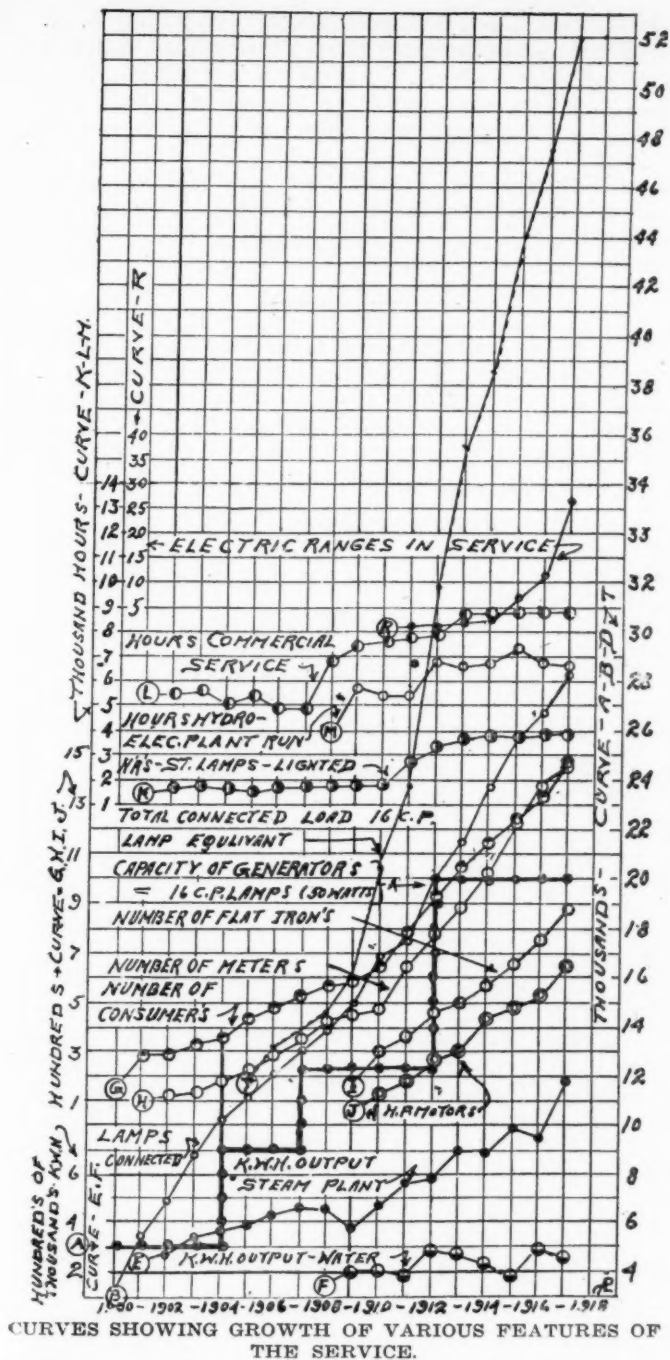
Concerning the matter of cooking by electricity, Mr. Pierce states that this is being rapidly recognized as an economical necessity and not a luxury; one indication of which is furnished by the increase in use of ranges in Wallingford of 36 per cent over the previous year. Most of the ranges are installed in the homes of working people. He recommends that the domestic



CURVES SHOWING FINANCIAL HISTORY OF THE DEPARTMENT.



CURVES SHOWING LOAD DURING SIX DAYS IN JULY AND DECEMBER.



CURVES SHOWING GROWTH OF VARIOUS FEATURES OF THE SERVICE.

department of the new high school arrange to give the girls instruction in the advantages and economies of cooking by electricity.

The amount received from incandescent lighting during the fiscal year was \$40,808, and that received for power was \$8,250; the total being \$4,611 greater than that for the previous year.

The capacity of the steam generators was 450 kw., and that of the hydraulic plant 120 kw. The latter furnished 27.9 per cent of all of the current generated. The peak loads and other variations in current consumption were handled by the steam plant. In his report Mr. Pierce presents a very interesting diagram showing the load curves for a number of representative days under different weather conditions. There is also shown in the report a diagram setting forth the finances of the plant and another showing a number of features, such as the number of ranges in service, hours street lamps were lighted, total connected load, and number of meters for each year of operation of the plant.

In spite of the fact that loss of income has resulted

from the almost universal use of the Mazda type of lamp, this has been made up by an increase of 16.7 per cent in the income from sale of power; and he expects to show even greater increase in the future as fuel for power becomes more expensive and more difficult to secure and its delivery more uncertain. In speaking of the use of electricity by industries, he states that there is in service on their system a motor that began operating in 1889 in St. Louis, was moved from there to Wallingford in 1908, and except for this change has been in continuous service during the entire 28 years, is still in service, and the total cost of repairs is believed to have consisted of one set of carbon brushes and one cleaning, the total cost amounting to not more than \$2.00.

Along with many if not most coal users, the Wallingford plant has experienced difficulty in connection with its coal supply during the past year, the matter of increased cost of other materials and labor adding to this. The cost of wire and cable has increased 138 per cent, that of pole line hardware 125 per cent, electrical generators and apparatus from 30 to over 100 per cent, and labor and coal to all that the traffic will bear. It is anticipated that during the coming year the increase in the cost of fuel for the plant over the cost of the past year will be about \$9,000, and that the increased cost of labor will be about \$2,000, and of material about the same; giving an increase of \$13,000 in all operating expenses, which will bring the estimate for 1917-18, including 8 per cent depreciation and 5 per cent profit, up to \$80,356.

Something over a year ago the secondary rate for resident service was reduced from 5c. to 4c. per kwh. and other rates were reduced also. This was more or less directly the cause of a 9.8 per cent increase in the amount of current generated. Had this current been sold at the previous rates, it would have cost the consumers \$1,750 more. It is possible that the increased costs above referred to may compel a return to higher rates. It may be possible, however, to avoid this by eliminating certain unnecessary expenses, by shortening the hours of street lighting service, etc.

"In view of the fact that large units in modern large power plants can generate a kwh. to 10.5 lbs. of steam with a consumption of 1.5 lbs. of coal, and that the average small plant uses from four to six times this quantity of coal to produce a kwh., it would seem that cheap power must in the future come from large centralized plants and interconnected systems."

HIGHWAY FREIGHT TRAINS.

Considerable has been said in Municipal Journal and elsewhere during the past six months concerning the advisability and probably the necessity of utilizing the highways of the country to a much greater extent than they have been up to date for the transportation of freight, because of the congestion of railway traffic owing to war conditions. In different parts of the country several more or less regular routes and schedules have already been adopted and freight traffic inaugurated over them. One of the longest of these, if not the longest, is that maintained between Akron, Ohio, and Boston, Mass., a distance of about 755 miles. This line is being operated by the Goodyear Tire & Rubber Co., which calls it the Akron & Boston Express. The equipment at present consists of two White and two Packard trucks, of 1½, 3, and 5-ton capacity, and additional trucks have been ordered for the service. The schedule calls for the round trip to be made in less than a week. J. L. Sydnor, who is in charge of the service, says that the express companies do not deliver the stuff between those two points as rapidly as that and that the costs by truck express are competing with the express rates. By this express



THE AKRON TO BOSTON EXPRESS ON A BAD STRETCH OF ROAD.

the company carries tires from Akron to their eastern branches and on the return trip brings cotton fabrics and machinery for the Akron plant. The service was started last April and it is hoped that it can be continued through the winter, although it may be interfered with by snow and ice. In this 755 miles only 28 miles is unimproved roads, which, however, cause considerable trouble in muddy weather. Another handicap is the poor condition of some of the old wooden and steel bridges. Pneumatic tires are used exclusively, for although the cost per tire-mile is greater, the wear and tear on the trucks and roads is found to be less.

ORGANIZING STATE ROAD WORK.

The state of Montana spends annually about \$3,500,000 on roads and bridges and the State Highway Commission, at a recent meeting, planned an organization of the work and believes that this and the use of standard methods may increase the efficiency of the money spent by from 10 to 50 per cent. It is proposed to create seven departments, each to have charge of a different part of the work that the highway commission is undertaking to perform. These departments are as follows:

- (1) Developing road construction and maintenance standards; introducing standardization.
- (2) Developing and introducing bridge construction standardization; supervising bridge construction.
- (3) Initiating and developing Federal Aid projects; developing system of road mapping and records.
- (4) Developing a system of cost records.
- (5) Developing construction organizations.
- (6) Developing appliances.
- (7) Information.

NOTES CONCERNING FIRE APPARATUS.

Monrovia, Cal., population about 5,500. George C. King, fire chief, reports that they have improved the efficiency of their department 100 per cent by the purchase of a triple combination Seagrave and the addition of 10 fire hydrants to the previous total of 150. The static pressure varies from 75 lbs. to 145 lbs. at the hydrants. The Seagrave triple on acceptance test delivered 325 to 350 gallons per minute through two 100-ft. lines of 2½-inch hose and with 1½-inch nozzles. At 300 lbs. pressure, 625 gallons were delivered. The engine was rated at 80 h. p. but developed 115 h. p. at the crank shaft. The total weight was 7 tons when carrying 1,200 ft. of 2½-inch hose, 300 ft. of 1½-inch, 200 feet of 1-inch, and a 24-ft. extension ladder, 12-ft. roof ladder, two chemical extinguishers and three Pyrenes.

Waterbury, Conn., population 95,000. Henry H. Heitman, fire chief, reports that in addition to the motor apparatus named in the table they have two horse-drawn vehicles which will probably be motorized next year by the purchase of one engine and one truck.

Evanston, Ill., population 35,000, will, says chief A. N. Hofstetter, motorize the entire department and has placed an order with the Seagrave Co. for a city service truck, a 700-gallon triple combination, two hose and chemical and booster pumps, and a tractor for the steam fire engine.

Portland, Me., population 62,000, reports fire chief Almus D. Butler, contemplates motorizing as fast as the funds will allow, probably at the rate of about \$15,000 a year, until wholly motorized.

FIRE PREVENTION WORK.

We have received a letter from W. L. Shafer, manager of the Chamber of Commerce of Lebanon, Pa., from which we quote the greater part, since it will, we believe, be interesting to a number of readers. Mr. Shafer writes as follows:

I was very much interested in table No. 2 of your Nov. 8th issue entitled "Fire Prevention Work." I was so much interested, in fact, that I had a count made of the table and the answers to three of the questions that applied more generally. The result shows the following:

Number of cities and towns reporting.....382

QUESTION: "Is Fire Prevention Work Organized?"

Number of answers 302; not answering 80, or 20.9 per cent. Yes or same as yes, 127, or 33½ per cent. No, 175, or 45.8 per cent.

QUESTION: "Do Regular Firemen Do Inspecting?"

Number of answers, 218; not answering, 164, or 42.9 per cent. Yes or same as yes, 179, or 46.9 per cent. No, 39, or 10.2 per cent.

QUESTION: "Has Fire Prevention Bureau Reduced Fire Losses?"

Number of answers, 240; not answering, 142, or 37.2 per cent. Yes or same as yes, 217, or 56.8 per cent. Probably or in doubt, 11 or 2.9 per cent; no, 10, or 2.6 per cent.

This table certainly shows the value of fire prevention work and the answers to the last question indicate clearly the need of organization for this work in all cities.

It will be noted in the above figures that the percentages of the "yes" and "no" replies are those obtained by reference to the total number of cities in the table and not to the number of those answering. It is quite probable that failure to answer the first two questions was in the majority of cases equivalent to a negative reply. In the case of the third question, it would seem that the conclusions should be based upon the number of replies only, since those not answering were probably confined to towns in which there was no fire prevention work and which therefore should not be classed as failure of fire prevention bureaus to reduce fire losses.

In Lebanon we observed Fire and Accident Prevention Day with addresses in all the schools by uniformed firemen or those able to talk on the subject practically, together with distribution to the children of "Don't" leaflets about fires, accidents and sickness; a meeting under the auspices of the Lebanon Chamber of Commerce, with addresses on fire prevention by Mr. Chas. B. Wolfe, chief assistant state fire marshal, and an address on "Accident Prevention" by Mr. Robt. D. Young, of the Bureau of Inspection, State Dept. of Labor and Industry.

As a result of this observance, a systematic and organized inspection of properties has been instituted by Mr. John W. Mills, fire chief, a lasting lesson has been given to the children, and more attention has been given to accident prevention.

SELLING GARBAGE IN PORTLAND.

Portland, Ore., a few days ago received, through its purchasing agent, bids for the garbage of the city which at present is being consumed in an incinerator. Four bids were received, the highest being \$5.60 a ton for the garbage at the incinerator, the lowest \$3.15 a ton. It is probable that the garbage so purchased will be used as food for hogs or chickens.

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Contributed Articles and Reports.

Contributions suitable for this paper, either in the form of special articles or as letters discussing municipal matters, are invited and paid for.

City officials and civic organizations are particularly requested to send Municipal Journal regularly their annual and special reports.

Information Bureau.

Municipal Journal's Information Bureau, developed by twenty-one years' research and practical experience in its special field, is at the command of our subscribers at all times and without charge.

FREIGHTING WITH MOTOR TRUCKS.

During the week ending November 17 (the latest for which these figures are yet available) the total bituminous coal output of the country was 19.2 per cent less than it might have been had it not been for car shortage. While much appeared in print concerning labor shortage and strikes, these reduced the output by only 2.6 per cent, or only one-seventh as much as did the car shortage. One month earlier car shortage diminished the output by only 9.2 per cent, and the percentage has been increasing gradually since then, not because the amount of coal hauled has become less, but that, while the possible output by the laborers has been increasing, the amount which the railroads could handle has remained stationary.

The above is only one phase, although possibly the most serious one, of the transportation problem which confronts the country. It is apparent to those familiar with conditions that the solution does not lie in one direction only, but that every means which promises any relief must be adopted.

One of the most promising of these is the use of motor trucks for short hauls in order to leave the railroads free to handle the long-haul traffic. The amount of this traffic that can be handled would be perhaps doubled if all short-haul traffic could be eliminated. It therefore becomes a duty, and it may be made compulsory, to handle as much as possible of the short-haul traffic by mediums other than the railroad.

The mediums which suggest themselves as available are trolley lines, and motor trucks using the highways. The use of trolley lines offers considerable advantage, especially if the passenger traffic on these can be cut down and possibly some of the older passenger cars made

over for freight and express service. These, however, are limited to the few routes over which they pass.

The motor truck, however, can reach any section of the country to which there are passable highways, and would be needed for the ultimate delivering and collecting of a considerable part of the freight and express carried by trolleys. It would therefore seem essential that trucks be utilized for this service, whether or not trolleys be used.

Taking into consideration the cost of re-handling freight from truck to other conveyance at the shipping end and from such conveyance to truck again at the delivering end, there would seem to be an actual saving in cost by using the truck for making the entire trip within certain limits of distance and availability of roads. An instance is cited elsewhere in this issue of the use of motor trucks in regular service covering more than 700 miles, and several other shorter routes have been operated over for a number of months. Four 5-ton trucks will carry as much as a fully loaded freight car, and two or three such trucks will carry as much as often is shipped on a car not fully loaded. The scheme has been proved to be practicable, even in its trial stage, and there seems to be little question that it will be developed to a much greater extent, even without any pressure being brought to bear by the Federal Government.

The indications at present are, however, that pressure of this kind will be brought to bear, as the officials in Washington apparently recognize the great service which motor truck freighting can give as a relief to the railroad situation. The adopting of such solution requires both trucks and highways capable of carrying them in all seasons. The truck manufacturers are already working up to present capacity in producing war trucks and other war material, and it is probable, or at least possible, that before next spring they will be directed to cease practically all pleasure car manufacture and devote to the production of motor trucks for war and freighting service the entire capacity of their plants which is not used for manufacturing the liberty engine and other war material.

While the truck manufacturers are preparing for the enormous extension of the truck freighting business, it is essential that the highway officials be equally active. Those who have charge of roads near the large cities realize that nothing wears these out more rapidly than heavy freight trucks, especially if the roads are of the lighter construction of a few years ago. It is evident that heavier pavements must be provided for this class of traffic and more careful and thorough maintenance be maintained. Macadam, either water-bound or bituminous, will not stand up under it. But it is impracticable to give to every road a surface capable of carrying such traffic, and therefore it seems necessary that certain routes be laid out to which such traffic must confine itself, and these routes only be given the expensive surfacing required for such service.

The collection of food products from the country districts, while it may call for equally as heavy trucks, will not require anything like the intensity of traffic for which the freight highways should be planned; moreover, such heavy freight would be confined to a few weeks each year, and it might be best to adopt for such roads the cheapest type of construction and maintenance that would carry this traffic through this particular season of a few weeks, even though extensive repairs would be required at the end of that time to keep the road in condition until the next season of heavy traffic comes around.

There seems to be little doubt that this enormous expansion of motor truck use of the roads is certain to

MOTOR APPARATUS IN SERVICE (Continued).

City and State.	Chief's Cars.	Chemical & Hose Ladders.	Chemical & Hose Without Ladders.	H. & L. Trucks.	Triple Combinations.	Hose Wagons.	Chemical Engines.	Gasoline Pumping Engine Hose & Chem. Gasoline	Gasoline Pump With Chem.	Gasoline Driven Steam Pump.	Fuel or Service Wagons.	Repair Wagons.	Squad Wagons.	Water Towers.
Oklahoma:														
Ada.....	.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bartlesville.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chickasha.....	1	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hugo.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Miami.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sapulpa.....	1	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oregon:														
Astoria.....	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baker.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Corvallis.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Marshfield.....	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Roseburg.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pennsylvania:														
Altoona.....	1	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bangor.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Beaver.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Beaver Falls.....	1	.....	1	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bellwood.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Blairsville.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bristol.....	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Brookville.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Carlisle.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clearfield.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Connellsville.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Duquesne.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Duryea.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Easton.....	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Franklin.....	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gaileton.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gallitzin.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Girardsville.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jeannette.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jersey Shore.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lansford.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lattrobe.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mt. Union.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Norristown.....	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oil City.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Philadelphia.....	16	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pittsburgh.....	10(1)	30(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Plymouth.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pottstown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Quakertown.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Reading.....	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scottsdale.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Fork.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sunbury.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Turtle Creek.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tyrone.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Uniontown.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Warren.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Chester.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Berwick.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wilmerding.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rhode Island:														
Central Falls.....	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Woonsocket.....	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Carolina:														
Aiken.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Charleston.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Darlington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Dakota:														
Aberdeen.....	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Madison.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Watertown.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee:														
Chattanooga.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clarksville.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Greenville.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Humboldt.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jackson.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

[illegible]

¹Steam propelled; ²aerials; ³to be delivered; ⁴with tractor; ⁵these are on steamer and H. & L. trucks; ⁶owned by chief; ⁷2 are aerials; ⁸part are aerials; ⁹with ladders; ¹⁰each combination tows a steamer; ¹¹drawn by combination; ¹²on hand, 3 contracted for; ¹³attached to H. & L. trucks and 22 to steam fire engines.

The WEEK'S NEWS

The State Highway Situation in Ohio, Indiana and Pennsylvania—Sewage Disposal in New Jersey Towns—Smallpox in Pennsylvania—All-Well Water Supply for Atlantic City—Fire Prevention Inspection in Connecticut—Los Angeles Dry—Bomb Kills Nine Policemen in Milwaukee—Lincoln Wants Home Rule—Trenton Indicts Car Company Officials—Car Heating in New York City—One-Man Cars in Massachusetts—The Akron Street Car Strike—Jitneys in Wisconsin Decreasing.

ROADS AND PAVEMENTS

Effect of Road Materials Embargo in Ohio.

Columbus, O.—That the order from Washington, barring the transportation of road materials in open top cars, is working a hardship on the completion of the road building program, that will result deleteriously for the national needs, was the consensus of opinion at a recent meeting of officials and trustees of the Ohio State Automobile association and the constituent clubs thereof. This order against shipping road materials in open top cars has practically put a stop to all road building in Ohio, it was stated by W. A. Alsdorf, secretary of the Ohio Good Roads federation. On the other hand, slight relief, such as one, two or five cars of material, would have finished scores of contracts that are just that much short of being complete. If these short stretches are not completed, they will seriously inconvenience the entire transportation system during bad weather. The completion of these short stretches will on the other hand greatly relieve the transportation situation, Alsdorf told the meeting. It will make possible the using of motor trucks for short hauls, thus releasing a great number of freight cars for hauls of all commodities. According to a report made to the meeting, 86 road contracts in Ohio will be completed this year, while 290 more cars would have enabled contractors to finish 150 more contracts.

Indiana Plans Main Market Routes.

Indianapolis, Ind.—The state highway commission, after months of traveling over Indiana roads and many meetings in various districts, has announced the first main market highways that have been officially designated. A former election of four of the five routes was tentative, and although the general directions of the four roads announced formerly have been adhered to in the official selection, many changes have been made. One main market highway, under the official designation, runs from north to south, three are east and west roads from the Ohio state line to the Illinois state line and one is an east and west road in the southwestern part of the state. The three main east and west roads are in the northern, southern and central parts of the state respectively. The main north and south road and the central east and west road cross each other in Indianapolis. The total mileage of the routes is approximately 800 miles, according to W. S. Moore, state highway engineer. The following main market highways have been officially designated: No. 1. The highway beginning at the Indiana and Michigan state line, thence southerly through South Bend, Plymouth, Rochester, Peru, Kokomo, Westfield, Carmel, Indianapolis, Franklin, Columbus, Seymour, Scottsburg, Sellersburg, New Albany and Jeffersonville. No. 2 The highway passing through the northern part of the state, beginning at the Illinois and Indiana state line, thence easterly through Dyer, Valparaiso, Laporte, South Bend, Goshen and Ft. Wayne via the Lincoln highway to the Ohio and Indiana state line. No. 3. The highway crossing the central part of the state, commonly called the old national road trail, beginning at the corner of the Illinois and Indiana state line, thence easterly through Terre Haute, Brazil, Putnamville, Plainfield, Indianapolis, Greenfield, Knightstown, Cambridge City and Richmond to the Ohio and Indiana state line. No. 4. The road crossing the southern part of the state, beginning at Evansville, thence

easterly through Boonville, Huntingburg, Jasper, West Baden, Paoli, Mitchell, Bedford, Seymour, North Vernon, Versailles, Dillsboro, Aurora and Lawrenceburg to the Ohio and Indiana state line. No. 5. The road connecting Vincennes and Mitchell, via Wheatland, Washington, Loogootee and Shoals. The total mileage of the roads represents less than one-half of the total 2,000 miles of "main market highways" which the commission may designate under the new state highway commission law prior to 1921.

Protect Pavements from "Underground Improvements."

Cleveland, O.—An entirely new division in the city department of public service will be created next year if a recommendation embodied by director Bernstein in the 1918 budget is approved by the new city council. It is to be known as the "division of underground improvements." "Its primary purpose will be to systematize all underground work and to prevent the unnecessary destruction of pavements by untimely installation of subterranean improvements," Mr. Bernstein explained. "It is to make all plans for underground construction work of the city and of all public service corporations in advance of public improvements. This division also will pass on all permits for the opening of pavements before the director gives his final approval. A complete record will be kept relative to the time during which pavements are guaranteed by the contractor. The entire cost of the new division is not expected to run over \$4,000 a year. Two or three men, one of them an engineer, will constitute its staff." It is also hoped to relieve to some extent the useless blocking of traffic by materials left during street construction and improvement work.

Keep Roads Open with Snowplows.

Harrisburg, Pa.—State highway commissioner J. D. O'Neil in a recent statement said that the highway department is working in harmony with the War Department and other branches of the United States Government, in order to relieve the freight congestion and to help avert a coal famine in the various cities and towns of Pennsylvania. He said that in every section of the state motor traffic of all kinds is increasing, and that many manufacturing and wholesale concerns are now delivering their products by trucks within a radius of 100 miles and less. He also stated that many of the towns throughout the state would be suffering from a coal famine if it were not for the coal that is being hauled from local mines by means of motor trucks. In order to keep all war emergency roads open during the winter, particularly the Lincoln Highway, commissioner O'Neil authorized the purchase of 15 snowplows, which will be attached to the five-ton trucks owned by the state highway department. Reports from the various superintendents show that over 200 cars and trucks a day are now being brought into Pennsylvania from factories in Cleveland and Detroit, and it has been estimated that during the next four months between 25,000 and 30,000 cars and trucks for Pennsylvania and other states will pass over the various state highways. Commissioner O'Neil said that the new 1918 license plates were ready. Up to Nov. 19 there were 546,740 licenses of all classes issued for the year 1917. Receipts for 1918 registrations and licenses are running several thousand dollars ahead of the same date last year, which indicates that all records will be broken during the coming year.

SEWERAGE AND SANITATION

City Officials to Court for Allowing Pollution.

Phillipsburg, N. J.—Charged with deliberate refusal to obey a mandate of the Court of Chancery directing the city of Phillipsburg to cease polluting the Delaware River, mayor Kneedler and the four other commissioners of the municipality were cited to appear before Chancellor Walker to show cause why they should not be adjudged in contempt of court. For more than fifteen years Phillipsburg has fought all attempts to compel it to cease emptying sewage into the Delaware. The fight has been made in the state courts, the legislature and the Supreme Court of the United States. As the outcome of litigation a decree of the Court of Chancery ordering the pollution to cease within one year was affirmed by the Court of Errors and Appeals, the record being remitted to the Court of Chancery June 11, 1916. Since last January, when the decree became effective, the state department of health has made repeated efforts to force action by the municipal authorities. The health department, through the attorney general's office, obtained from Chancellor Walker a writ attaching the five city commissioners for alleged contempt of court. One plea advanced in behalf of Phillipsburg, apart from the cost of installing a sewage disposal plant, is that such action would be futile while Easton and other municipalities in Pennsylvania are permitted to pollute the river. Pennsylvania has offered to meet New Jersey on equal terms to purify the Delaware, provided the entire project would be carried out. A number of municipalities, of which Trenton is the largest, obtain their water supply from the Delaware, whose condition has been a subject of frequent warnings from the state health authorities.

Smallpox Epidemic in Pennsylvania.

Meyersdale, Pa.—Owing to a threatened epidemic of smallpox, the borough authorities issued an order closing the local public schools and motion picture theatres for a period of two weeks in an effort to prevent the disease from spreading. The local churches and Sunday schools were also closed for the same period. Two of the cases of the disease were reported from one house.

Harrisburg, Pa.—With new cases reported daily to the office of Dr. Samuel G. Dixon, state health commissioner, there is now smallpox in twelve counties, with thirty-eight patients under quarantine. This state of affairs, according to Dr. Dixon, although it does not constitute a severe epidemic, is a serious one. Smallpox has developed since the first of October in twelve counties of the commonwealth and there are several active centers. Another danger lies in the fact that Ohio has a great many cases, as reported by the commissioner of health to Dr. Dixon, while within a few days previous to the report Cumberland, Md., just across the border, had become a center of infection with ten cases. Three trails of infection have gone great distances across the state, according to Dr. Dixon's reports. On October 23, a man came through the city of Erie on his way from Akron, O., and crossed Erie, Warren, McKean, Elk, Cameron, Lycoming and Clinton counties while he was in the eruptive stage of the disease and dangerous to all with whom he came in contact. He ended his trip at Trout Run, Clinton county. His presence is accountable for the five cases of smallpox reported under quarantine in Clinton county. On November 8, another man, while in the infectious stage of the disease, went to Philadelphia from Punxsutawney, and then on to Camp Dix in New Jersey, passing through ten counties of Pennsylvania while en route. Election day several hundred people were exposed to William Motter, a member of the election board at Blue Ball, Clearfield county, who had contracted the disease through individual contact with an originating case at Point Lookout. Half a dozen contacts have already become ill and there may be more. On November 17, another man in the eruptive stage of smallpox left a road construction camp at Seward, Westmoreland county, and went by train to Philadelphia, where he was at large on the streets, lodging houses, and

other places of public resort. The department has also been notified of a new center of infection in Myersdale, Somerset county. "The state should realize that it now has a patriotic duty to perform," said Dr. Dixon, "in stamping out smallpox. Our agents through the state are competent and active men, but they can do little if the public fails to do its part. The present smallpox epidemic at Blue Ball in Clearfield county and surrounding neighborhood is directly due to the fact that a case of smallpox which came into the state from Ohio was secreted and the knowledge of it kept from the health authorities. Blue Ball is now isolated and the Pennsylvania railroad neither receives nor discharges passengers or freight there, according to our request. The public can do its share by seeing that no case where smallpox is even slightly suspected shall escape the attention of competent medical authorities. Physicians can do their part by acting in cases where smallpox may be a possibility, although it cannot be positively diagnosed, with all the precaution possible, rather than giving the benefit of the doubt of a positive diagnosis than a negative one."

Disposal Plant Plans Approved by State Board.

Washington, N. J.—Plans of the borough for the enlargement of the sewage disposal plant have been approved in a letter from the state board of health to the common council. Permission also was given to build and operate the plant, subject to revocation at any time. The borough was instructed to add two more sand filtration beds before November, 1918, and two more before November 1, 1919.

Haddonfield, N. J.—After using the town sewerage system for fourteen years the borough is considering making such additions to the plant as will make it as modern as possible with increased disposal facilities. The addition will be an Imhoff tank, according to plans submitted to the board of commissioners by the borough engineer. These plans have been approved by the state board of health. Commissioners are also considering the advisability of using the waterfall at the new Evans pond as a source of power for a municipal lighting plant.

Oppose Consolidation of Sewerage and Water Boards.

Trenton, N. J.—Last spring Governor Edge suggested that it might be found desirable to merge the Passaic Valley Sewerage Commission with the North Jersey District Water Supply Commission as a part of his economy and efficiency program. A special commission was appointed to report as to the advisability of consolidation. This commission has now reported that the merging of the two bodies would be impracticable, and that nothing should be done to interrupt the work of completion of the trunk sewer. The report will without doubt be officially approved by the governor and the legislature. The active life of the sewer body is drawing to a close, but it still has a number of important contracts to let and complete. With a reorganization of the commission, it is felt by the investigating commission complications might result that would prove much more costly than the amount that would be saved by the lopping off of the salaries of the commissioners and of their employees. At the hearings held by the commission Adrian Riker of Newark was spokesman for the sewerage commission, and Morris R. Sherrerd, chief engineer of the former Newark board of works, for the water supply commission. Mr. Riker laid particular emphasis upon the legal complications likely to ensue in the event of any consolidation taking place while the trunk sewer project is under way. He remarked that the municipalities in the district now are being asked to raise \$2,000,000 additional for the work, and expressed the belief that a change in the commission at this time might cause delay, if not more serious consequences, in this respect. Mr. Riker estimated that any delay in the work would probably result in an added cost of at least \$500,000, and in the event of the work being held up for any considerable period, he said the loss might easily be \$1,000,000. He pointed out that reorganization of the commission might afford objectors a ground for litigation, which could result in serious delays. Speaking for the

Water Supply Commission, Mr. Sherrerd said he thought the work now in the hands of that body should not be interrupted by attempting consolidation, for the present at least.

Closing Polluted Wells.

Lawrence, Mass.—Fifty-one wells were recently closed in this city in one week as the result of tests made in the university laboratories by the university health authorities with the cooperation of the city officials. Notices were sent to the well owners to fill up or discontinue the use of the wells within five days. Wells in other sections of the city are being tested daily by the university authorities and the owners of wells in which typhoid or other injurious bacteria are indicated will be promptly notified to close the wells. This action is the result of a recent complaint by the university regarding the city's well supplies.

WATER SUPPLY

All Water Supply from Wells.

Atlantic City, N. J.—Ninety per cent of the city's water is coming from artesian wells bored to low strata levels on the municipal watershed above Absecon. The daily consumption averages 5,750,000 gallons, the highest daily pumpage for November having been 6,300,000 gallons. Additional wells are being bored and as soon as piping and machinery can be procured all the city's winter water supply will be coming from underground springs. This is the first time the city has so nearly obtained its entire supply from wells, according to Dr. J. B. Thompson, director of the department of public works.

City Buys Water Works.

Reading, Pa.—The Glenside Water company, a private concern supplying annexed territory, has been bought by city council. The price paid by the city for the plant was \$32,000.

Fined for Water Waste.

Bristol, Tenn.—Thirty-seven water customers on this side of Bristol were fined in the recorder's court as a part of the vigorous program inaugurated by the city authorities to prevent waste of water by leaving spigots open, according to official announcement. At this time of the year the water supply on this side invariably runs low and the commissioners have been forced to adopt stringent means for curtailing the waste. Leaving spigots open is considered by the officials to be one of the greatest sources of waste. The maximum fine for permitting spigots to run unnecessarily in Bristol is \$50 under the provisions of the water ordinance.

Suggests Reading All Meters at One Time.

Dallas, Tex.—Police and fire commissioner R. L. Winfrey proposes to save the sum of \$25,000 per year and release nearly a score of men for other work by combining the duties of water, gas and electric meter readers, through the application of power invested in the supervisor of public utilities. Commissioner Winfrey's plan is to have one meter reader do the work of three others, reading the water, gas and electric meters in one trip, eliminating two others from this task. Under present conditions each utility maintains a force of meter readers, three men calling at each home during the month to check the amount of gas, water or electricity used. All of this can be done by one man and at the same time, commissioner Winfrey says, eliminating the two extra calls and saving the salaries of two inspectors. Added to this plan of time, labor and money conservation, he said, the three bills can be mailed to patrons in the same envelope, effecting a saving of several hundred dollars each month. The city now pays \$17,550 per year to have water meters read and inspected, the annual budget shows, and under commissioner Winfrey's plan one-half and possibly two-thirds of this amount would be saved to the water department. It is his plan to have the waterworks department, the gas company and electric light company pay pro rata shares of the expenses of the combination readers. Half

the number of men now employed in the three services would be ample enough for the combination position, commissioner Winfrey said.

STREET LIGHTING AND POWER

Voters Must Approve Leasing Municipal Plant.

Groton, N. Y.—Sustaining an opinion written by commissioner Barhite, the public service commission at Albany has denied the application of the Groton Electric Power Corporation seeking authority to lease for a term of years, the electric light plant and system owned by the village of Groton, Tompkins county. The application is denied for the reason that according to specific provisions of the village law, no village can grant any rights or franchise to public utility corporations without first submitting the matter to a vote of the electors of the village. It is held that the village, although the arrangement proposed would apparently, eventually work out to the advantage of the village, has no right under the law to lease its plant without first bringing the matter to a vote. That the village take this step, is urged by the commission.

Withdrawal of Lands for Transmission Lines.

Washington, D. C.—The Department of the Interior recently authorized the following statement: "In the western states permits for the use of water power sites and for rights of way for electrical power transmission lines are issued by the secretary of the interior under acts of congress which provide for the occupation and use of lands by power companies. The necessity for the withdrawal from all other kinds of entry of such power sites and rights of way is obvious. If, for instance, a permit were issued for a right of way over public lands and these lands were afterwards taken up under the homestead law, a renewal of the permit could not be granted by the Government, since the land would have passed into private ownership. In such a case, a power company after once having been granted a right of way from the Government would be compelled to obtain a renewal from all the individual landowners into whose possession the land had passed. The governmental policy has therefore been adopted of withdrawing land covering the right of way needed for a transmission line in order that this narrow strip of land affected may be permanently retained in Government ownership. This leaves with the Federal Government full power to deal with permits for power transmission lines. The land under these power withdrawals may be later acquired for agricultural use, but this does not affect the right to its use for power transmission purposes; the agriculturist can simply use it in so far as farming or ranching operations do not interfere with the construction and operation of the transmission lines."

Commission Disapproves Competition.

Bronxville, N. Y.—In refusing to grant the application of the Lawrence Park Heat, Light & Power company of Bronxville for permission to compete with the Westchester Lighting Company, the state public service commission of the second district maintains that to allow competitive lighting systems would be in deliberate disregard of the law and settled policy of the state and would impose a condition from which the public might in the end be a heavy sufferer. The Lawrence company sought to furnish the business section of that village with electricity and thus compete with the Westchester Lighting Company. Originally the Lawrence company was only intended to light buildings owned by the members of a family that owns the light company. The Lawrence interests constructed new buildings, stores, residences and business blocks, and served these properties with electricity from their own plant, in some cases ejecting the Westchester Lighting Company from these buildings and the tenants' places. Since the Lawrence company was in a position to take this business over without seeking any public franchises, there was nothing the Westchester Lighting Company could do to prevent it. In August, 1916, the village granted the Lawrence company certain franchises.

A street-lighting system involved the placing of wires underground, but under conditions the Westchester Lighting company could not accept. The Lawrence company accepted the lighting contract. The commission points out that in the great majority of cases in years gone by competition between utility companies operating in a single field had produced very bad results from the points of view both of the public and the competing companies. "It was recognized that this kind of competition," commissioner Emmet declares, "almost invariably resulted in the partial or complete crippling of enterprises which were subject to it, with the inevitable result that utility companies generally were not giving anything like as good service to the people as they might reasonably be expected to give under happier and saner conditions."

FIRE AND POLICE

Fire Prevention Inspection Covers State.

Hartford, Conn.—Inspectors of the Conservation Association of Connecticut, who recently started a campaign to eliminate or reduce fire hazards in this state as a war measure have completed their work in a number of cities and towns, including New Haven, Bridgeport, Waterbury, New Britain, Bristol, Plainville, Berlin, Terryville, Union City, Naugatuck, Watertown, Waterville, Thomaston, Mystic, Noank, Stonington, Pawtucket, Groton, and all of Windham County. Their work has the endorsement of the Connecticut State Council of Defense and the Council of National Defense and their methods are to make careful surveys of the places they visit to discover fire hazards and make recommendations. There are between thirty and thirty-five experts engaged in the survey. Letters have been sent by the State Council to the mayors and fire and police chiefs of the cities which, it is hoped, will help to make the task of the inspectors easier. The council also asks the general public to cooperate as much as possible with the inspectors so as to help make their patriotic efforts successful. Certain classes of property are not inspected, notably buildings that are regularly inspected by insurance companies, comparatively isolated pieces of property that are of insignificant value and certain buildings that are classed as non-hazardous.

Fireman Killed.

Osceola, Ia.—Two persons were killed and several injured and property valued at nearly \$150,000 was destroyed by fire which started in an apartment house here. Richard Egleston, night marshal, and George Griffin, fireman, lost their lives when a wall of the building buried them.

Los Angeles Goes Dry.

Los Angeles, Cal.—By a vote of 54,455 to 34,281, a majority of 20,174, the voters have approved an ordinance to close all saloons after March 31, 1918. This ordinance was prepared and presented by the Anti-Saloon League. It provides for the permanent closing of all saloons at midnight, March 31, 1918, permits the sale of liquor in restaurants and cafes until 9 p. m. and permits the continuance of wholesale houses and family liquor stores, providing the liquors sold do not contain more than 14 per cent of alcohol. Two other ordinances on the same subject were presented to the voters. One was known as the "short ordinance," and did not provide any changes from existing conditions except the elimination of saloons on June 30, 1918. The third ordinance provided for closing saloons on December 31, 1918, and would permit liquors sold thereafter by wholesalers and package houses to contain 21 per cent alcohol. It was similar to the first proposition in other respects. Officials of the Anti-Saloon league campaigned vigorously in support of their own ordinance, alleging publicly that the other ordinances were presented in an attempt to befog the issue and by dividing the "dry" vote, defeat the movement. The wholesale and retail liquor men have denied these charges. The liquor interests have based their fight against the ordinance on the claim that a "dry" enactment at this time would depress realty values

by taking tenants from 300 storerooms, and would decrease public revenues. It is claimed that Los Angeles will now be the largest saloonless city in the country.

Vice District Abolished.

New Orleans, La.—The city's legalized vice district has been forced out of existence, an ordinance for that purpose passed by the city council at the request of the war department being now in effect. Judge King in civil district court refused to grant an injunction of a keeper of a resort to restrain the city authorities from enforcing the ordinance. Attorneys for a resort keeper announced an appeal from judge King's action would be taken to the supreme court.

Police Chief Reinstated.

Atlanta, Ga.—James L. Beavers, former chief of the Atlanta police department, convicted on charges involving inefficiency and insubordination, has been exonerated and reinstated as chief by the police commission before which the case was tried for a third time. Beavers waived all claim to back salary, amounting to approximately \$8,000. Chief Beavers was dismissed from office in August, 1915, after he had been convicted on two charges. The case was carried to the Fulton superior court on a writ of certiorari, and returned to the commission, after which he was again convicted on amended charges. The case then was carried to the superior court for a second time on another certiorari and returned to the commission, the third trial, which had been postponed three times, resulting in his exoneration and subsequent reinstatement. Capt. William M. Mayo was appointed police chief after chief Beavers' dismissal. Chief Beavers signed an agreement to resign after ninety days, providing a majority of the members of the commission requested him to do so. Beavers immediately entered upon his duties as chief, chief Mayo being made a captain.

Nine Policemen Killed By Bomb in Station.

Milwaukee, Wis.—Following investigation by city, state and federal officers, a number of alleged anarchists have been rounded up in connection with the death of nine policemen and a woman in the central police station due to the explosion of a bomb. The bomb was taken to the station by an Italian, who said he discovered it in the basement of a church in the Italian district. The Italian was met near the station by detective Bart Maloney. Maloney, escorting him into the station, placed the bomb, which was enclosed in a black box, on a table in the waiting room while he took the man into the office of police lieutenant Flood. Detectives were on the second floor of the building at the time responding to roll call. When they came down the stairway and noticed the black box one picked it up to examine it. The bomb then exploded. The lower floor of the building was shattered. Seven of the men were killed and a number injured, two dying later. A woman who had come in to make a complaint was also killed. The dead men are Stephen H. Stecker, Fred Kaiser, Albert Templin, Paul Weiler, David O'Brien, Frank Caswin, Charles Seehawer, Henry Deckert and Edward Spindler.

GOVERNMENT AND FINANCE

Vote for Home Rule Charter.

Lincoln, Neb.—This city has adopted the home rule charter at a special election by a vote of 990 for to 135 against. Less than one-tenth of the voters in Lincoln voted. One-eighth of those who did vote were election board officials. There was absolutely no interest in the election shown by the great mass of the voters and the opposition to the proposed charter was too light to make itself felt. The total vote was 1,125 and the city's total registration is 12,128. On December 2, 1913, a similar special charter election was held. Despite a vigorous campaign for and against, the vote was light. Then 2,505 voters cast the ballot. Of this number, 1,849 were negative and 656 for the charter. Opponents of that charter centered the fight on two or three issues, a leading one being a

proposed amendment relative to the city's powers in taking over public utilities. Charles W. Bryan led the opposition. In order to build and operate a public utility, the charter proposed that the city be required to submit the question of condemnation of the properties of the holding concern to the voters. If the voters turned down the proposition, it must be submitted again in not less than twelve months. If the voters twice turned it down, then the city might go ahead and build its own utility. Mr. Bryan claimed that the majority of the framers of the charter were financially interested in privately-owned utilities. The small vote at that election was surprising. This year there was no public or private denunciation of the proposed charter. Instead of making new laws it makes new conditions—which will permit a city to govern itself.

Gives Up Commission Form.

Appleton, Wis.—At the recent election, the voters showed their disapproval of the commission form of government by voting that it be abandoned. This form was in effect for six years. The city commission claimed that the town had been cleaned up and the debt reduced under the commission administration.

New City Manager Appointed.

East Cleveland, O.—East Cleveland's first city manager will be C. M. Osborn, who was for ten years city engineer of Lorain, Ohio, according to an announcement by the city commissioners, W. M. Pattison, A. W. Calder, E. M. Sprague, J. F. Pease and T. P. Cagwin. Mr. Osborn will take the reins of municipal management Jan. 1, when the city's new form of government goes into effect. The commissioners picked Mr. Osborn from a large list of available men. Mr. Osborn, who is 43, is well known in Ohio as a municipal engineer. After serving Lorain as assistant engineer for three months, he was placed in charge of the department, and has remained there for ten years. He is a graduate of the Case School of Applied Science. After leaving the school he entered the employ of a Cleveland firm of engineers then engaged on work on the Sault Ste. Marie canals. He remained with the firm seven years. In Lorain, Mr. Osborn has been identified with many engineering projects. He has had charge of river and harbor improvements and directed the building of the Baltimore & Ohio subway there.

TRAFFIC AND TRANSPORTATION

Car Company Officials Indicted.

Trenton, N. J.—Criminal indictments, charging the maintenance of a common nuisance in illegally having poles and wires on certain streets of the city, have been reported by the Mercer county grand jury against all of the officers and directors of the local trolley system, the Trenton and Mercer County Traction Corporation. The indictments were unanimously found by the jury, following the disclosures of the grossly defective service made by the members of the city commission, who appeared in person to press the complaints. The charge is that of a misdemeanor and the maximum sentence, if convictions are found, is three years in prison and a fine not exceeding \$1,000 each. It is anticipated that a big legal fight will be instituted to have the indictments set aside and save the trolley officials from going to trial. The indictments returned each contains fifteen counts, specifying the illegal use of that number of streets by the trolley officials. In addition to president Rankin Johnson and former president Oscar Crosby, former judge George W. Macpherson and Edmund M. Hunt, the remaining two directors in the operating corporation, are likewise indicted. Indictments were also found on fifteen counts against the directors of the three corporations from which the lines were leased by Crosby. These directors are Ferdinand W. Roebbling, Jr., John A. Rigg, Richmond L. Jones, E. H. Ginnelley, Walter A. Rigg, T. W. Crookett and John W. Goodwin. Three separate indictments, containing fifteen counts each, have been found against the Riggs,

Roebbling, Ginnelley, Jones and Crookett, because they are all directors in three of the corporations owning the local trolley system. The complaints of the city, which have been made for years, point out that despite repeated requests the streets on which the tracks run have been allowed to remain in dangerous condition. Other nuisances denounced in this report are that the company allows material to lie on the streets indefinitely; track inlets are sadly neglected; there are continual delays in all paving and repaving work on streets occupied by car tracks, hindering city contractors from prosecuting their work on account of delays in track replacement and repairs, in some instances the company employing nine men on work that required at least 25 or 35 men all the time; indifference of officials of the company to the quality of material used for repair work; encouragement of poor workmanship by using inferior concrete mixture and lean grouts to save materials; destruction of city water pipes by electrolysis; low joints in rails, caused by rotten ties and absence of ballast; neglect of tracks over grade crossings; feed wires are allowed to sag, bringing damage and destruction to trees; trolley poles of iron are in dangerous condition due to corrosion at the base; substitution of iron poles by wooden ones, contrary to ordinances, and "continuous disregard of promises made by trolley officials to the city commissioners and the street department."

Director of public safety LaBarre, city counsel Bird, George L. Record, public utility expert, and city engineer Swan have made trips to Cleveland and Detroit to make a survey of trolley conditions and engage an expert to look over local trolley conditions, with a view of bringing about improved service. The commission instructed them to pay particular attention to conditions in the western city having a three-cent fare. Engineer Swan will pay particular attention to the street paving as done and maintained by the trolley companies, while director LaBarre, who is largely responsible for the present fight against the Trenton and Mercer County Traction Corporation for the purpose of bringing about improved facilities, will confer with city officials and others. Mr. Record and Mr. Bird will be in consultation with the legal departments and interview experts qualified to make a survey of local conditions of trolley service.

Heating of Cars to Be Tested.

New York, N. Y.—The Brooklyn Rapid Transit Company recently requested that the public service commission allow the suspension of its heating order during the rush hours. J. J. Dempsey, superintendent of the elevated lines of the company, explained to the commission that it is not proposed to stop heating the cars altogether, but to heat them for an hour before they were placed in service for the rush hours so that only a small percentage of the energy now used for heating would be necessary to maintain the temperature at a reasonably comfortable level. He said that to furnish heat for all cars in accordance with the original commission order would mean the consumption of from 100 to 400 tons of coal a day, according to the weather, or the expenditure of about 30 per cent of the total output for heating alone. Only in exceptionally cold weather would it be necessary under the plan suggested by the company to have more than two points of heat in the cars, and much of the time only one point would be necessary. Following a hearing the commission agreed to the plan of the company for a test of proposed new heating arrangements on its cars. The commission directed also that the test contemplated be put into operation under the following provisions:

The plan of the company is to heat a few cars at the depot to a certain temperature, then turn off the heat and send the cars out.

The cars on which such tests are to be made shall not number more than three on each surface line during each rush hour, and two complete trains on each elevated or subway line.

The cars shall be selected by the electrical engineer and the chief of the transit bureau of the commission.

The tests shall be made between the hours of 7 and 9 a. m. and 5 and 7 p. m. on each week day, and shall continue during the next two weeks or such further period as the commission shall prescribe.

The electrical engineer and the chief of the transit bureau of the commission will direct and supervise the tests and they shall have the power of prescribing the manner of making the tests and record their results.

Full and complete records shall be kept, showing the tests made, the lines, type of car, testing conditions, number of passengers carried on each car, the temperature inside and outside the cars at suitable intervals, and any other relevant facts, all of which shall be submitted to the commission at the adjourned hearing in the case on Dec. 2.

The representative of the commission on any test car shall have the power at any time to order the test on that car terminated and to require heat turned on to the extent deemed necessary.

The commission states that it shall not deem as a violation of any provision of the heating order of April 26, 1912, any act or omission of the company or of any of its officers and employees with reference to any car used in such experimental test and displaying such sign, nor any temperature maintained in such car during any period of the experiment. The present order of the commission requires the company to maintain a temperature of not less than 40 deg. Fahr., or more than 65 deg. from Oct. 15 to April 15. The order is effective except when the company is prevented from complying with it by storm, accident or other emergency beyond the company's control. Mayor-elect John F. Hylan sent a letter to Oscar A. Straus, chairman of the commission, in which he said that he felt certain the commission would not grant the suspension of the heating order and that the commission would see to it that the law was properly enforced and that cars were properly heated as the health of the community demanded. He said: "If the transit corporations do not live up to the law I will ask the proper authorities to take action." According to newspaper reports he said: "If the public service commission does not compel the Brooklyn Rapid Transit company to heat its cars during the coming winter, as required by law, I shall ask all the civic bodies of New York City to accompany me to Albany to ask for the removal of the commission."

Vote For Subway Ordinance.

Cleveland, O.—The subway ordinance, urged by mayor Harry L. Davis, who has been re-elected, was approved at the recent election by a vote of 56,242 against 39,961. As a result of this, preparations will be made for the construction of subways and an underground terminal in the congested portion of the city. Under the state laws, mayor Davis will appoint a commission with sole power over the location, planning and construction of the subways. The commission will appoint its own engineers and counsel. It was on this point that opposition during the campaign was centered. Those who disapproved of the plan were in favor of the subways, but wished to leave control of them in the authority of the city officials.

Commission Approves One-Man Cars.

Boston, Mass.—The Public Service Commission has approved the application of the Bay State Street Railway Company to operate one-man cars on a number of its short rural lines. This marks the introduction of the single operator car in Massachusetts. This permission is given, the board says, in an effort to increase the net earnings by lessening operating expenses on the light travel lines of which there are found to be fifteen in all the Massachusetts territory served by the company. In its order recently handed down the board says: "The objection usually made to one-man cars is that they are dangerous, but recent improvements have robbed this objection of its force. Both of the cars now offered for approval by the Bay State company have safety features which are not found on its regular equipment and which are described in a report made by the inspection department of the commission as follows: 'There are two doors, one on the right side of each end, and each car is arranged for pre-payment service. The controller handle is of the "dead man" type, arranged so that if the pressure of the hand on it is released at any time, when the air brakes are not set, certain emergency features will be put into operation. The cars are equipped with combination straight air and automatic emergency brakes and also with hand brakes. The emergency features which are

set in operation by releasing pressure on the "dead man" handle, consist of arrangements for throwing off the power, applying sand to the rail, setting the automatic air brakes, opening the forward door and unlocking the rear one. These emergency features are controlled and operated by air and are not dependent upon the presence of power, and can be effected whether the car is moving or standing. In case of failure in the air apparatus, the hand brake can be used and the doors opened and closed by hand, but, of course, in this case the safety features would be absent. The operator's brake valve controls the service and emergency brake operations, the door movements and also the service application of sand to the rail.' At the hearings the employees of the company opposed the introduction of the new cars, but in the opinion of the commission this attitude is contrary to their own best interests. The Bay State company has a number of country lines with very low earnings which are in serious danger of being abandoned unless expense can be decreased, and it also has short-haul lines of the type already mentioned where it ought to be possible to increase both service and patronage by the use of one-man cars, and to meet jitney competition to much better advantage. The company has recognized the principle that a higher rate of wages ought to be paid the man who combines the functions of motorman and conductor and if these cars will accomplish the results anticipated, they will improve a situation which is as threatening to the employees as it is to the company itself. The commission directs that these cars shall only be operated under the following conditions: (1) When a car is running the operator shall transact no business relative to the collection of fares or the issue of transfers. (2) If the operator has occasion to leave his car, he shall remove and retain in his possession the reverse handle of the controller."

Decrease in Number of Jitneys.

Madison, Wis.—The number of jitneys operated in the state is declining, according to information compiled by the railroad commission. On September 1, 1916, the number of bonded carriers licensed to operate in Milwaukee was 297, and on September 1 this year the number was 200. For most of the months throughout the year the number operated in Milwaukee has been less than 200. In Racine there are 28 bonded carriers licensed to operate, 18 of which are on route 1 and 10 on route 2. In Kenosha there are 45 operators. Since September 4, 1915, there have been 647 different bonded carrier operators operating cars in Milwaukee, Racine and Kenosha. Of this number 412 are no longer operating, showing that while the total number of operators has changed, there has been only a slight reduction in the number of cars operated. Racine and Kenosha conditions have not changed materially since a year ago. Slight reductions have occurred.

End Street Car Strike.

Akron, O.—The 800 motormen and conductors of the Northern Ohio Traction & Light Company have returned to work following an agreement. The men are to receive an increase of 5 cents an hour for the period between Nov. 1 and May 1, 1918. Negotiations may be opened at the expiration of this contract for a new wage scale, but in case of a disagreement between the company and the men the adjustment of the scale must be left to arbitration. This clause was introduced in the last proposition made by the company. An increase of 5 cents an hour from Nov. 1 to May 1, 1919, was offered by the company the day before the settlement. This proposal was rejected. The company felt that it should protect itself against excessive demands in case of a shorter period by the use of the arbitration clause, and the executive committee recommended the acceptance of the proposition in that shape. According to the settlement the men on the Akron city lines will receive 33 cents an hour for the first year, 35 cents for the second year and 38 cents thereafter. Men on the interurban line will receive 2 cents an hour more than this rate. The original demand of the men was for a straight advance of 10 cents an hour.

LEGAL NOTES

A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

Police Power—Loitering.

(Ga. App.) An ordinance, forbidding under penalty any woman of disreputable character to loiter about the streets or stores of a city without proving that she is on unavoidable business, is not unconstitutional.—*Neal v. City of Dublin*, 92 S. E. 1021.

Assessment—Wrong Basis.

(Wash.) An assessment by a municipal corporation for opening an alley is on a fundamentally wrong basis if in fixing the amount to be levied against one lot the benefits to another lot owned by the same persons and not assessed were considered.—*City of Hoquiam v. Moe*, 165 P. 1055.

Raising Roadbed Illegally—Remedy.

(Vt.) Where the roadbed of a street is raised by the street commissioners without legal authority, it cannot be urged against a bill in equity for relief that there was an adequate remedy at law.—*Collins v. City of Barre*, 101 A. 43.

Assessing Cemetery for Sewers.

(Ind.) Burns' Ann. St. 1914, § 8726, providing that land used for cemetery purposes shall not be assessed for sewers or drains, applies only to such sewers or drains as come in physical contact with, abut, or are adjacent to, lands held or occupied for cemetery purposes.—*City of Gary v. Gary Oakhill Cemetery Ass'n*, 116 N. E. 741.

Injury to Foundation—Basis for Suit.

(N. Y. City Ct.) Where a subway contractor agreed to do work without injury to adjacent foundations, and, if damage was done, he would make it good, adjacent owners must sue contractor on breach of his covenant, instead of for damage done property.—*Congregation Rodeph Shalom v. Bradley Const. Co.*, 165 N. Y. S. 507.

Assessments—Exempting Property—Authority.

(Ind.) In the absence of any specific statutory authority, the exemption of property from local assessments will not be presumed, and any law to that effect will be strictly construed.—*City of Gary v. Gary Oakhill Cemetery Ass'n*, 116 N. E. 741.

Damage to Gas Mains by Sewer Construction.

(Or.) A gas company could not recover damages to mains necessarily resulting from construction of a city sewer.—*Portland Gas & Coke Co. v. Giebisch*, 165 P. 1004.

Proportioning Contract Money to Creditors.

(Kan.) Where contract price of municipal improvement was insufficient to meet all claims, and proportionate distribution of loss was ordered, claim of one subrogated to right of laborers and materialmen should be reduced only in proportion that total loss bore to total cost of improvement.—*Fidelity & Deposit Co. of Maryland v. City of Stafford*, 165 P. 837.

Retaining Part of Contract Money for Guaranty.

(Kan.) Under Gen. St. 1915, § 1237, city of first class may contract for repaving of street and provide for retention of part of contract price as a guaranty of repair, and provide for annual payments to contractor for the repair.—*Rohr v. Crancer*, 165 P. 823.

Right of Council to Supervise Streets.

(Ark.) Under Kirby's Dig. §§ 5530, 5607, city council of city of first class had right to supervise repair of streets, to enforce provisions of contractor's maintenance bond, and to control litigation on bond.—*McClendon v. City of Hot Springs*, 195 S. W. 686.

Right to Prohibit Use of Streets.

(Tex. Civ. App.) City given absolute control of its streets by Legislature may wholly prohibit use of its streets for prosecution of any private business or grant use with such restrictions as it deems proper.—*Peters v. City of San Antonio*, 195 S. W. 989.

Street Privileges to Corporations.

(Ill.) A city is not required to grant privileges to all public service corporations on the same terms.—*City of Springfield v. Interstate Independent Telephone & Telegraph Co.*, 116 N. E. 631.

Assessing Cost for Sewage Disposal Plant.

(Ind.) Under Burns' Ann St. 1914, §§ 8695, 8965, a city may construct a sewage disposal plant and assess the cost on a district to be formed as provided by section 8724 for sewers.—*Prevo v. City of Hammond*, 116 N. E. 584.

Assessing Costs—Benefits.

(Iowa). Supreme court cannot presume, from mere fact, that two separate tracts of materially different area are assessed same amount for street improvement in front of them, that such assessment is inequitable and unjust, and not according to special benefits.—*Snyder v. City of Belle Plaine*, 163 N. W. 594.

Subway Contractor—Liability for Light and Air.

(N. Y. Sup.) A contractor, constructing subway for city, is liable for interference with easement for light, air, and access possessed by lessee of land abutting on the street.—*Sinsheimer v. Underpinning & Foundation Co.*, 165 N. Y. S. 645.

Sidewalk Vault—Liability for Injuries.

(N. Y. Sup.) If city revokes permit to occupy vault beneath sidewalk, to permit construction of subway, but contractor does not assume control of vault, contractor is not liable for personal injuries caused by open coal hole.—*Scarpolla v. Oliver Typewriter Co.*, 165 N. Y. S. 885.

Subway Construction Not Governmental Function.

(N. Y. Sup.) In constructing a subway, through its contractor, a city discharges a proprietary and not a governmental function.—*Sinsheimer v. Underpinning & Foundation Co.*, 165 N. Y. S. 645.

Accident on Icy Walk—Liability.

(N. J.) Owner who had erected retaining wall along sidewalk so that snow accumulating on premises melted, ran over on to sidewalk, and froze, was not liable to pedestrian falling on ice, where there was no showing that snow had been brought to premises from another place.—*Lightcap v. Lehigh Valley R. Co.*, of New Jersey, 101 A. 187.

Police Power—Prohibiting Sidewalk Vaults.

(N. Y. Sup.) A city can enforce an ordinance prohibiting maintaining of vaults under sidewalk without a permit.—*City of New York v. Gerry*, 165 N. Y. S. 659.

Police Power—Prohibiting Jitneys on Certain Streets.

(Tex. Civ. App.) An ordinance prohibiting jitneys, other than those operating from A. to U., from using certain streets, is not an unwarranted discrimination rendering ordinance invalid.—*Peters v. City of San Antonio*, 195 S. W. 989.

Right of Taxpayers to Recover Funds.

(Ind. App.) Taxpayers may, in behalf of themselves and others similarly situated, take steps to recover misappropriated funds, and to that end to commence and prosecute actions.—*Michigan City v. Marwick*, 116 N. E. 434.

Street Ownership—Adverse Possession.

(Md.) Where city widened street and remained in possession for 40 years, under authority of Acts 1836, c. 63, vesting in it title to street so widened provided that rights of individuals who owned fee in street were not interfered with, it acquired title to fee by adverse possession, since agreement whereby proprietors relinquished all interest in the street though not sufficient to convey fee, showed that city occupied street in the belief that fee vested in it.—*Brady v. City of Baltimore*, 101 A. 142.

Bases for Assessments and Benefits.

(Iowa). Frontage may be taken into account as basis for determining benefits to land from improvement in street, and mere fact that assessment was substantially in accordance with cost of improvement in front of each tract is not conclusive that assessment was not according to special benefits conferred, and does not overcome presumption that city council proceeded according to law.—*Snyder v. City of Belle Plaine*, 163 N. W. 594.

NEWS OF THE SOCIETIES

Calendar of Meetings.

Dec. 26-29.—AMERICAN POLITICAL SCIENCE ASSOCIATION. Annual meeting, Philadelphia, Pa. Secretary, Clinton J. Swartz, Trenton, N. J.

Dec. 27-29.—AMERICAN SOCIOLOGICAL SOCIETY. Annual meeting, Philadelphia, Pa. Secretary, Scott E. W. Bedford University of Chicago, Chicago, Ill.

Jan. 3, 4.—NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual convention, Trenton, N. J. Secretary, Clinton A. Swartz, Trenton, N. J.

Jan. 15-17.—VIRGINIA GOOD ROADS ASSOCIATION. Seventh annual convention, Richmond, Va. Secretary, C. B. Scott, Richmond, Va.

Feb. 6-13.—FIRST CHICAGO CEMENT MACHINERY AND BUILDING SHOW. Supersedes annual Chicago Cement Show. Held at the Coliseum, under direction of the National Exhibition Co.

March 17-24.—PAN-AMERICAN CONGRESS ON CHILD WELFARE, Montevideo, Uruguay. Secretary, Edward N. Clonper, 105 East 22d Street, New York, N. Y.

The American City Planning Institute.

The recent meeting of the American City Planning Institute in New York City disclosed that the zoning movement started by New York City is fast spreading to the other cities of the country. This session of the institute was held in New York for the special purpose of permitting those interested in zoning in other cities to study at first hand the actual operation of the New York law. Zoning commissioners to prepare zoning plans have been appointed in Philadelphia, St. Louis, Newark and other cities. Members and representatives of these zoning and city planning commissions and committees to the number of about one hundred attended the conference.

The morning session was held in the office of the Committee on the City Plan of the Board of Estimate and Apportionment in the Municipal Building. Edward M. Bassett, former chairman of the New York Districting Commission, presided. The detailed methods and results of zoning were discussed by Robert H. Whitten, secretary of the Committee on the City Plan, Rudolph Miller, chairman of the Board of Appeals, H. H. Murdock, architect, and Francis P. Schiavone, of the staff of the Committee on the City Plan. After this session the members of the conference took an automobile trip through lower Manhattan and Brooklyn. They were specially interested in the preservation of residential districts and in the detached house sections of Flatbush, where, under the "E District" regulations, the erection of apartment houses has been stopped.

Groups of visiting planners were conducted through the Washington Square section, where certain residential areas are to be preserved under the zone plan; also through 14th street, 23rd street and Sixth avenue, old retail and department store centers. They were also shown recent interesting examples of the use of the set-back principle in

the construction of buildings in order to comply with the height provisions of the Zone Law.

In the evening the visitors held a meeting in the Engineering Societies Building and Mr. Lawson Purdy presided. Addresses were made by John P. Fox, consultant to the Committee on the City Plan, B. A. Haldeman, engineering advisor to the Philadelphia Zoning Commission, Harland Bartholomew, engineer of the St. Louis Zoning Commission, and others.

This meeting in New York was significant on account of the widespread interest that has been developed throughout the country in the building zone movement initiated in New York City.

Empire State Gas and Electric Association.

At a recent executive committee meeting of the Empire State Gas and Electric Association the following plan for the appointment of various committees was approved: (1) The executive committee would authorize the following committees or sections: commercial committee, gas production committee, gas distribution committee, electrical production committee, electrical distribution committee, electrical meter committee. (2) Each member company would be asked to name, on form provided, representatives to be the official members of these committees or sections. All notices of meetings of these committees or sections would

then be sent to the persons thus named. (3) At the first meeting of each section the members would elect from the official company representatives a chairman, a vice-chairman and a secretary, who would act as an executive committee of such section. These persons would hold office for one year from the date of their election.

New England Water Works Association.

The December meeting of the New England Water Works Association will be held at the Hotel Brunswick, Copley Square, Boston, Mass., on Wednesday, Dec. 12. The program follows:

11.00 a. m. Meeting of the executive committee at the headquarters, Tremont Temple

1.00 p. m. Lunch will be served at Hotel Brunswick

2.00 p. m. Proposed amendment to constitution submitted to the executive committee in writing Nov. 14, 1917, and by unanimous vote recommended for adoption by the association: Strike out the whole of section 2, article IV, and make it to read as follows: Sec. 2. The annual dues shall be, for members, \$5; for associates, \$25.

The following papers will be presented:

"Description of Recent Construction Work at the Ayer Cantonment." (Illustrated.) By Frank A. Barbour, supervising engineer.

Informal talk on steam and power matters, by F. W. Dean, mill engineer and architect, Boston, Mass.

Talk on Porto Rico (illustrated) by Frank L. Fuller, civil engineer, Boston, Mass.

PROBLEMS CITIES ARE STUDYING WITH EXPERTS

SEWERS are to be built by Wrightstown, Wis. The consulting engineers are Orbert & Albert.

A SEWERAGE SYSTEM is to be built by Eagle Grove, Ia. The engineer for the work is C. H. Currie.

Girard, O., is to build a big TRAFFIC BRIDGE. Plans for the improvement have been completed by the engineer, William Wilson.

Sparta, Wis., is to increase its WATER SUPPLY by drilling a new well. The engineer for the work is W. G. Kirchoffer.

A WATERWORKS SYSTEM to be built by Inglewood, Cal., is being planned by the engineering firm of Olmsted & Gillelen.

In constructing improvements to its WATER SUPPLY SYSTEM, Laurel, Mont., had the engineering services of B. C. Lillis.

A SEWAGE DISPOSAL PLANT is proposed for Macon, Ga. Plans and specifications are being prepared by the engineer, Frank L. Wilcox.

Pleasant Hills, Mo., is making some PAVING IMPROVEMENTS. The engineers for the work were the Schockley Engineering Co.

Wesleyville, Pa., is to build a sanitary SEWER SYSTEM and DISPOSAL PLANT. The city has retained as consulting engineer B. E. Briggs.

A SEWAGE DISPOSAL PLANT is to be built by Albion, N. Y. The engineer for the improvement is H. G. Kittredge.

Mazeppa, Minn., is to reconstruct a BRIDGE. The city has retained J. H. A. Brahtz as consulting engineer to prepare plans and specifications for the work.

Fort Worth, Tex., is to enlarge its WATER FILTRATION PLANT. The city commissioners have retained John H. Gregory as consulting engineer to prepare plans for the improvement.

The village of Grosse Pointe, Mich., is making extensions to its WATER DISTRIBUTION SYSTEM. The firm of Mason L. Brown & Sons is acting in a consulting engineering capacity.

NEW APPLIANCES

Describing New Machinery, Apparatus, Materials and Methods and Recent Interesting Installations.

IDEAL CINCINNATUS MIXERS.

Batch Mixers and Pavers of Various Types and Capacities

The drum of the Ideal Cincinnati batch mixer is designed for rapid and thorough mixing and rapid and clean discharge. It is claimed that a thorough mix of slush concrete can be obtained in four revolutions of the mixer drum, and even very thick concrete can be mixed within twenty to thirty seconds. The interior construction of the drum is as follows: Six large buckets are placed near the center of the drum. From each alternate bucket there is a wing running to opposite ends of the drum. The wings give the batch a twisting and kneading action, to which is added a tumbling and pouring action by the buckets. The spacious buckets enable the mixer to discharge rapidly, and the space between the blades, together with the large opening on the charging end of the drum, makes the mixer easy to keep clean.

The drum is of the non-tilting type and consists of two semi-steel drum heads, united by a cylinder of ten gauge blue annealed sheet steel. The drum heads are cast solid and are then machined on the outside of the rim to form a smooth running track for the trunnions and also on the inside of the rim to make a tight joint with the drum sheet. This joint is further calked and rendered watertight with asbestos cement.

The buckets and deflecting blades are made of heavy sheet steel and held on forged steel brackets, firmly bolted and riveted. The drum is chain driven, the larger sizes with a heavy steel chain and the smaller with a heavy malleable iron chain.

The loading skip is made large enough to easily hold a full charge of materials without crowding. The end of the skip is undercut, making it easier to run wheelbarrows up to it. The skip swings on two heavy angle iron pieces, which extend down the throat of the skip for about 30 inches, and are riveted to the skip itself, greatly adding to the stiffness and making it impossible for the skip to buckle. The skip rises to a very steep angle and is stopped at the discharge point automatically.

The water tank is of the open type, with a special valve, which does not allow the water to run over and which makes it possible to fill to any desired level accurately. By means of three-way valve the tank measures the water and fills itself to the required point as soon as the tank has been emptied, but, unlike a tank of the closed type, completely drains itself after each filling.

Discharge is very simple. By lowering the discharge chute levers the discharge chute is inserted into the center of the drum and empties it quickly. No more than 15 seconds, it is claimed, is required for emptying any size mixer. The construction of the discharge chute is such that concrete cannot injure the operating parts. The chute can be operated from either side and is easily handled, so that in discharging into wheelbarrows the flow of concrete can be instantly started or stopped.

The countershaft is set nearly level with the top of the drum and is well protected from grit. Power is transmitted from the engine to the drum through a multiple disk clutch on the gasoline equipments. The hoist shaft is placed directly over the drum where it cannot get splashed up with concrete or grit. A 14-inch contracting band hoist of special design is used. The large diameter of the hoist gives enough pulling power to allow the use

of an 8-inch cable drum. There is an automatic stop and a powerful hand brake.

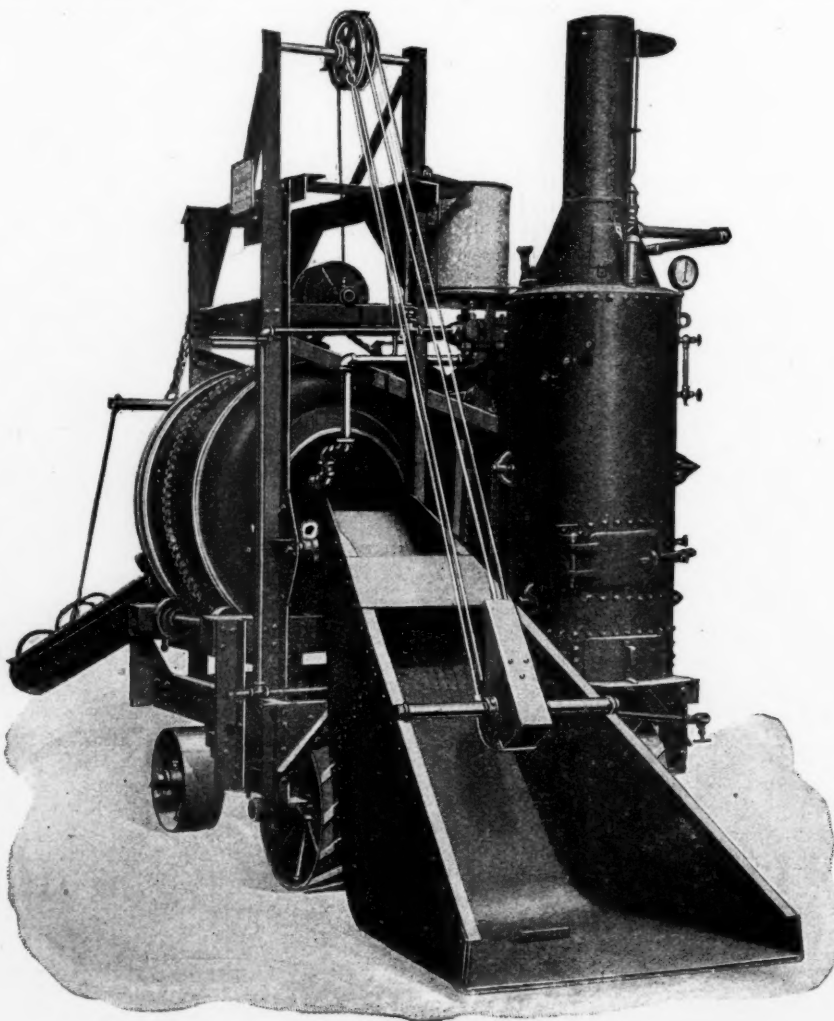
The trunnion bearings are carefully protected by the cast iron housing, steel and felt washers and a steel guard. The trunnions are fastened to the trunnion shafts by set screws. The trunnion shaft revolves in flexibly hung steel roller bearings.

The trucks are powerfully constructed of steel angles and channels, but the weight is not excessive. The wheels have heavy, wide-grooved tires and staggered spokes. Axles are of steel I-beam construction.

Novo or Ideal gasoline or Orr & Sembover steam engines are used for power.

The batch mixer is made in 5, 7, 10 and 14 foot (dry) capacities. The illustration on next page shows a No. 10 power loader equipment. It is run by a 6 h.p. gasoline engine, but may be equipped for steam or motor drive.

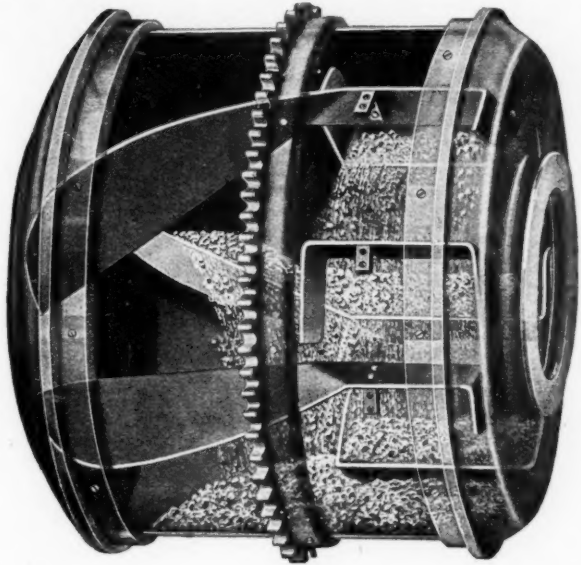
The other illustration shows a No.



14-CUBIC FOOT IDEAL CINCINNATUS CONCRETE PAVER.

14 steam paver. It has a 6 h.p. steam engine and an 8 h.p. boiler. The traction speed is $1\frac{1}{2}$ miles per hour, either direction. The distributing chute is either 12 or 15 feet long, and is arranged to discharge at four points.

16 inches span to 22 by 28. By using one-inch instead of two-inch lumber a culvert as small as 13 x 15 can be built. The No. 2 form will build culverts ranging from 24 x 26 to 36 x 46 inches. With both sizes in a culvert



"PHANTOM VIEW" OF DRUM OF IDEAL CINCINNATUS CONCRETE MIXERS SHOWING CONSTRUCTION AND MIXING PRINCIPLE.

(Note buckets and wing blades).

As it swings in an arc of 180 degrees it permits the concrete to be placed exactly where it is wanted without unnecessary shoveling.

These mixers are members of the full line made by the Ideal Concrete Machinery Company, Cincinnati, O.

COLLAPSIBLE CULVERT FORM.

One-Man Form Shows Marked Economy.

Contractors and highway officials are recognizing that the use of timber construction forms in building concrete culverts is responsible for waste of lumber, labor and time. The "One-Man" collapsible culvert form is a device made of iron bars, which is claimed to make a saving in concrete box culvert construction amounting to 25 to 50 per cent. Lower labor and lumber costs, speedier work and better construction, without danger of cracking or collapse, are the advantages claimed for this form.

This form is made in two sizes. No. 1 builds culverts with inside measurements ranging from 14 inches high by

building equipment 39 different culvert openings can be obtained.

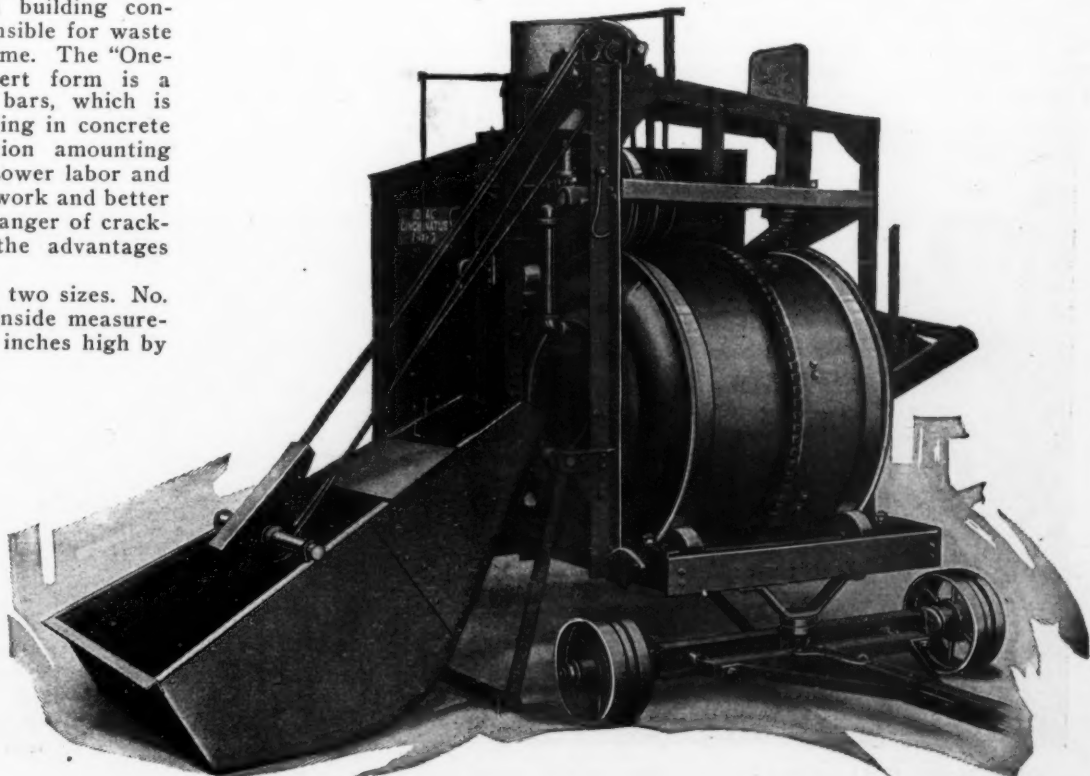
The form comes in sections, easily erected and easily taken down. A 30-foot culvert can be built with four sections. As many sections as necessary are put into place, the boards are set around it, the concrete is poured, and when it is hardened the forms are collapsed and withdrawn one at a time. Where the culvert opening is too small to admit the body of a man the inner form is collapsed and drawn out with stout wires,

previously attached to cross-rod and center bar. Tripping the form after the concrete has set is very simple. As shown in the illustrations on next page, the legs of the main support-braces all rest upon and are pivoted to the inner frame. A pull at the cross bar at either end of this frame draws it forward sufficiently to allow the braces to tumble down. The cross arms follow and the side uprights, which are also pivoted at their bases, drop inward toward each other, allowing plenty of clearance above. A pull on the center bar draws in the side-sills and side clearance is thus obtained.

In building a culvert where the soil conditions and force of the water do not necessitate a concrete bottom the forms may be placed at once on "two by fours." Where concrete on all four sides is required the forms may be placed at once on the base concrete if it is mixed a little stiffer. Boards are then laid on it and the forms placed on the boards. Rigidity and strength of the forms are such that they are guaranteed to be able to bear up a thickness of fully two feet of mixture the entire length of the culvert without sagging, which makes it safe to fill over the concrete before it is set, giving traffic a chance more quickly. By using two sections of the form one-half the culvert can be built at a time, and the road can thus be kept open at all times.

Cracking, due to swollen framework, occurring with lumber, is eliminated with the iron forms. The lumber is not warped nor wedged in so that it cannot be removed. In working in difficult locations the collapsible form is found of considerable advantage.

Among those who have found the



10-CUBIC FOOT
IDEAL
CINCINNATUS
CONCRETE
BATCH
MIXER.

"One-Man" culvert form economical and efficient are: The highway commissioners of Grundy county, Chicago, Ill.; W. G. Killelea, contractor, Marseilles, Ill.; A. W. Jewett, overseer, Mason and Dansville road, Mich.; J. A. Cragwell, city engineer, and W. S. Harding, county surveyor, Crawfordsville, Ind.; J. H. Clements and D. Y. Stout, contractors, Crawfordsville, Ind.; Will P. McCoy, St. Joseph county engineer, Mendon, Mich.; Abner Lantz, trustee, Milan township, New Haven, Ind.

The "One-Man" collapsible culvert form is made by the Storms Manufacturing Company, Monadnock Building, Chicago, Ill.

INDUSTRIAL NEWS

Cast Iron Pipe.—Prices remain the same after the recent rise of \$5 at Birmingham and Chicago. The New York prices also remain unchanged. Municipal business is still being withheld to a large extent because of prices: Quotations: Chicago, 4-inch, class B and heavier, \$58.50; 6-inch, \$55.50. New York, 4-inch, class B and heavier, \$59.50; 6-inch, \$56.50. Birmingham, 4-inch, class B and heavier, \$53; 6-inch, \$50; class A, \$1 extra, all sizes.

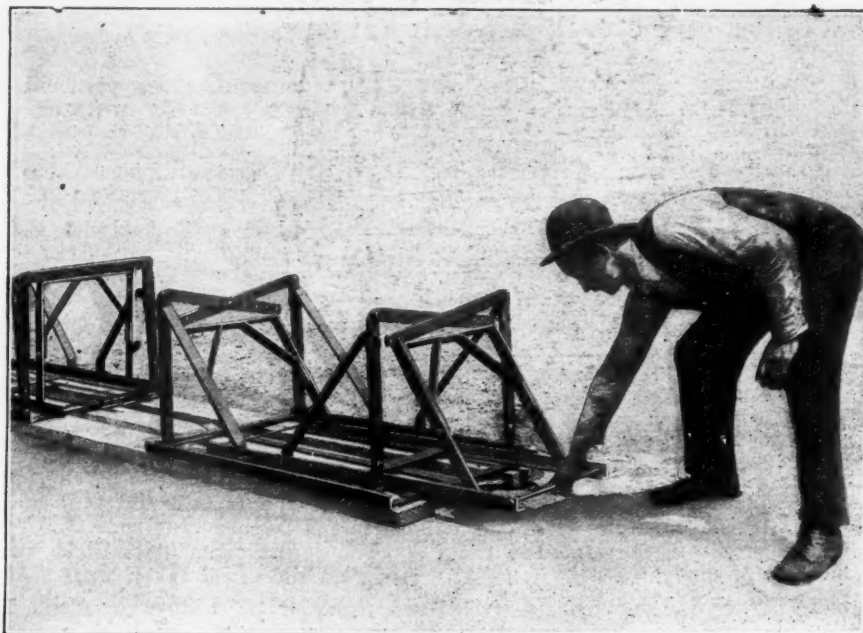
"Motor Trucks of America."

Announcement is made that the 1918 edition of "Motor Trucks of America," of which S. V. Norton, manager of truck tire sales of the **B. F. Goodrich Rubber Company**, Akron, O., is the author, will be ready for distribution on January 1st. The book, consisting of 200 pages of reading matter, illustrations and specifications, is the sixth to be issued in as many years. It is hand sewn and of heavy binding.

Complete specifications of nearly 150 of the leading gas and electric driven motor trucks are contained in the volume. In fact, there are thirty-one

specifications for each model. These details are absolutely dependable, as the approval of each truck manufacturer is obtained before specifications of his model are inserted. For the reason it offers opportunity to the buyer and manufacturer to compare models, lists all makes according to sizes and affords a perspective on changes of design by comparison with previous editions, "Motor Trucks

aroused by the introductory articles by Mr. Norton. His previous papers on "Lengthening the Life of the Motor Truck," "Devices That Make for Motor Truck Efficiency" and "Fundamental Questions Involved in Changing from Horse to Motor Delivery" have been so much in demand that frequent reprints have been necessary to take care of requests for extra copies.



"ONE-MAN" COLLAPSIBLE CULVERT FORM (PARTLY TRIPPED).

of America" is widely accepted as a complete and authentic handbook of the truck industry.

The illustrations, too, add much value to the book. They picture the very latest models and furnish the man in the market for a truck, or the manufacturer themselves for that matter, suggestions for special bodies for particular lines of work.

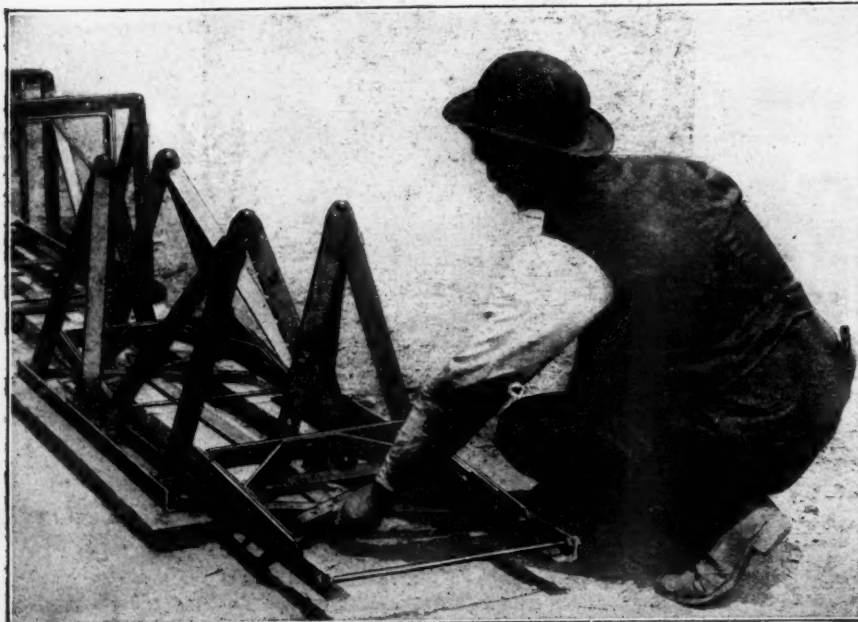
Great interest has always been

One great element of value derived from "Motor Trucks of America" has been that it enables the buyer to get accurate information on all trucks without going into the market. The buyer is not obliged to write for all catalogues and thereafter become the quarry for much solicitation. "Motor Trucks of America" saves both time and money, and should prove of decided value to all who are, or may at some time be in, the market for motor vehicle equipment.

The Asbestos Protected Metal Company, Pittsburgh, Pa., announces that after December 1, 1917, it will be represented in the state of Georgia by J. F. Schofield's Sons Company, located at Macon.

The Reliance Motor Truck Company, formerly known as the Racine Motor Company, will move to Appleton, Wis., as soon as new buildings are ready for occupancy. The company will manufacture 1½-ton, 2½-ton, 4-ton and 6-ton models.

1917 Lead Output.—The lead production of the United States for the first half of 1917, according to C. E. Sieben-thal of the U. S. Geological Survey, was 306,062 net tons, as compared with 571,131 tons for all of 1916. Exports of domestic lead to July 1, this year, were 29,241 tons, as against 100,565 tons in all of 1916. Lead available for consumption on July 1, 1917, was 268,995 tons. It was 461,173 at the end of 1916.



"ONE-MAN" COLLAPSIBLE CULVERT FORM (SIDE-SILLS DRAWN IN).